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Amazing COMPUTING™

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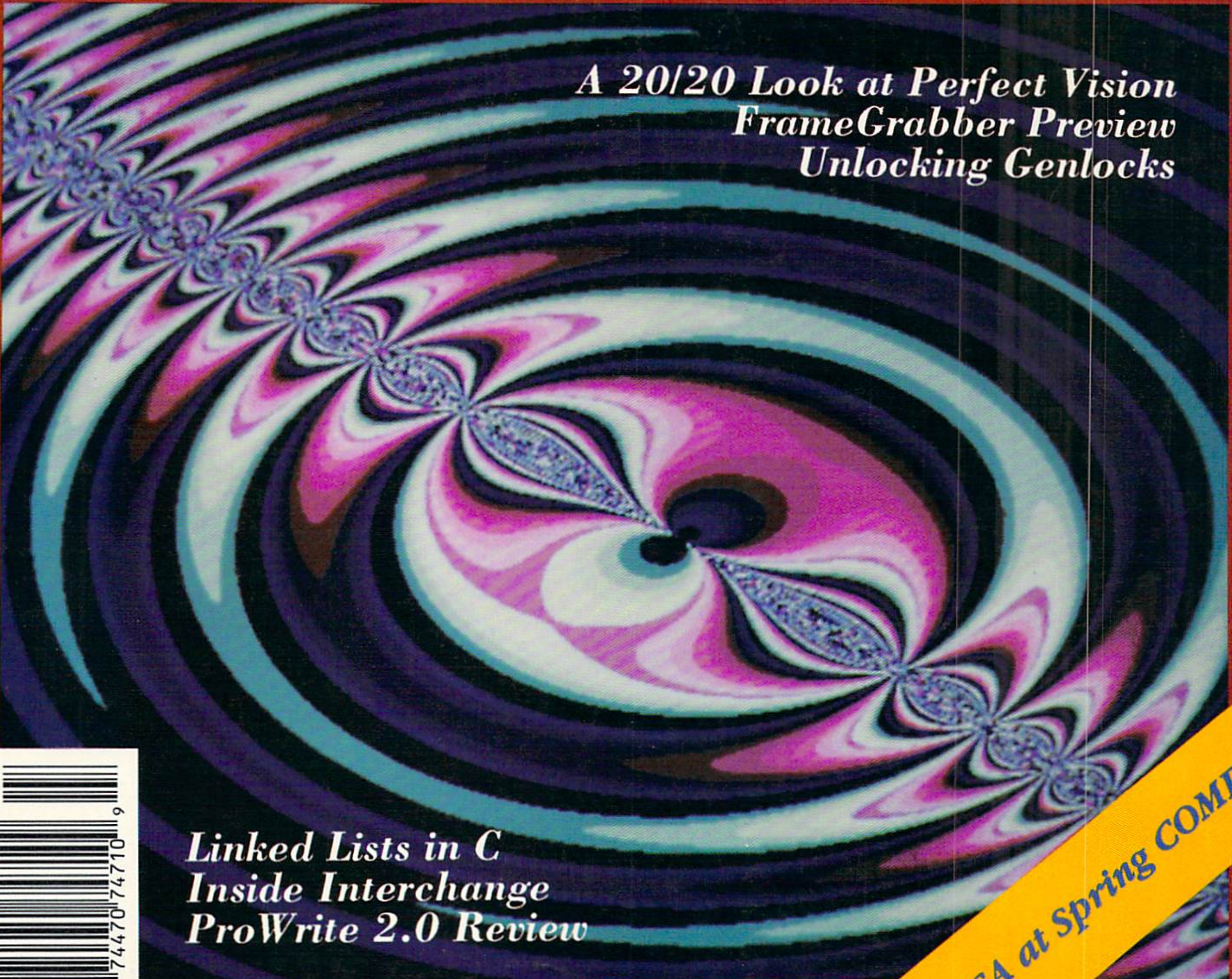

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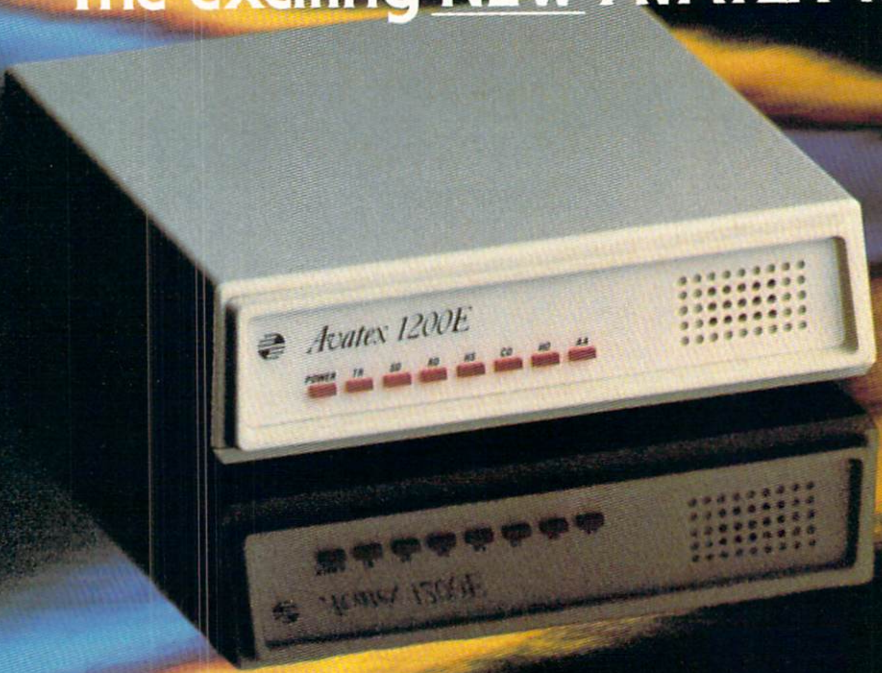

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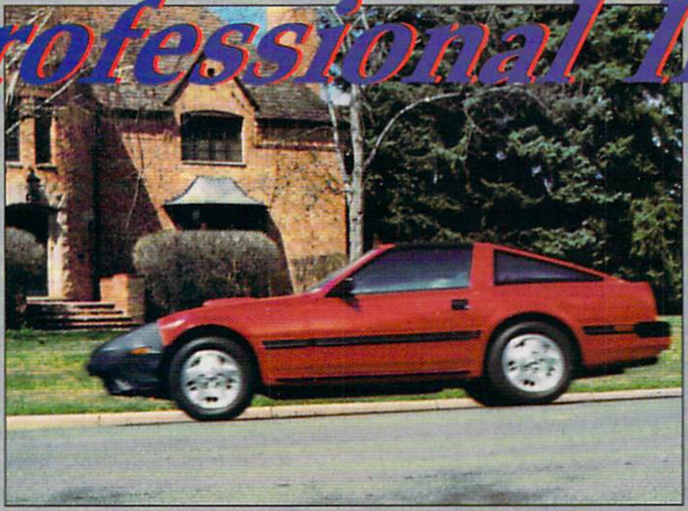

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Amazing Mail

Dear Amazing Computing:

This is for users of TDI Modula-2 who would like to add their own modules to the M2 directory but cannot due to lack of disk space. My solution is to split the present M2 directory into two parts, one called M2 which contains the .sym files for compiling and one called M3 which contains the .lnk files for linking. To accomplish this, the following steps are necessary:

1) On a formatted disk named M2.301, create directory M2 and copy all .sym files from the old M2 directory into it (In CLI, assuming old M2 disk is in dfO:
```
1>copy dfO:m2/#?.sym to m2.301/m2).
```

2) On another formatted disk named M3.301, create directory M3 and copy all .lnk files from the old M2 directory into it (In CLI, assuming old M2 disk is in dfO:
```
1>copy dfO:m2/#?.lnk to m3.301/m3).
```

3) Use your favorite file selector editor (such as FileZap or NewZap) on the file Link to change all occurrences of M2 to M3.

4) Place the following lines in your Startup-Sequence:
```
Assign M3:  M3.301:M3
Assign M2:  M2.301:M2
```

Donald Akland
Washington

Thank you. With disk space at a premium, and hard disks still out of some readers' reach, it is good to have an option.

Dear Amazing Computing,

The Tidewater Amiga User's Group meets the first and third Tuesday of each month at 7:30 pm at Electronic Computer Processing Institute, 555 Greenwich Road, Virginia Beach, VA. The group has approximately 50 members representing all facets of Amiga computing. There are no dues.

Josh Rovero
President
Tidewater Amiga Users Group
5449 Beaufain Boulevard
Virginia Beach, VA 23464

Dear Amazing Computing,

Digi-View owners should be informed that the New-Tek Digitizer works best when using a B/W video camera with internal sync capabilities such as the Panasonic WV1410 camera. Many companies sell the RCA Model 1500 camera to be used with Digi-View. This camera achieves vertical sync by line-locking to the 60 Hz power supply input, this is sometimes referred to as "random sync". The problem is this sync has no relationship to the horizontal sync created by the camera. Unfortunately, the Digi-View digitizer needs the horizontal and vertical sync pulses referenced to each other in order to create well-defined images without the "jaggies" as in the case on digitizing artwork or text. For general picture digitizing, the RCA camera will work fine for most applications.

Michael J. Sikula
Florida

In the pursuit of a better video interface for our Amigas, we tend to forget the older, tried and true tools which made the Amiga the Amazing video processor it is. Your input is well received.

We welcome your comments!

All readers who have letters, questions, or comments printed in AC receive a certificate for 5 free Public Domain Software disks from The Fred Fish Collection and/or The AMICUS Series.

Get involved, please write us!

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From The Editor:
On Amiga Video and Editorials

Summer Video

Summer is here, and, while a good many people desert their Amigas for the great outdoors, we felt the July issue of *Amazing Computing*™ should direct itself to the rapidly advancing Amiga video market. Now as you tape your children's baseball games, family outings, and company picnics, you will have a better understanding of the pre-production, production, and post-production options your Amiga can give you.

The AC staff has enjoyed playing with the new Amiga video products we were able to use in our offices. We hope our enthusiasm in these toys (uh, tools) will show in these pages.

Inside, we have continued our Amiga Product Guide series. This time video and graphic tools are spotlighted. We have also included several reviews and insights into what these Amiga video tools can do. Please let us know your reactions.

Video Hype?

While "video" may appear as a narrow avenue for the Amiga to some readers, and an overworked advertising gimmick, please consider:

A. Before Apple Computer's third party developers established the desktop publishing market, no one could have predicted the demand from the business and users community.

B. Video and active presentations are more enjoyable and more memorable for audiences than dry handouts and static overhead projection presentations.

C. The dramatic expansion of Camcorders, VCRs, and high quality television sets into the consumer market introduces a new opportunity for post-sale and add-on products.

No other computer or processor matches the Amiga in price and function. It is probable that no marketing department, educational facility, or serious video user will be without an Amiga in the years to come.

Our Philosophy on Editorials

A philosphy on editorials is slightly different then an editorial philosophy. While the latter states your editorial position on issues, reviews, and the objectives of the publication, a philosophy on editorials concerns the position, priority, and scope of your editorial columns.

Some readers may wonder why there is not an editorial in every issue of AC.

> *When style supplants information, good, lengthy, technical articles are replaced by the quick fix or the flashy piece to provide stylish art or a hot "blurb" on the front cover.*

Some publications always use a page or more to promote the current issue's features, expound an idea, or justify their editor's salary. Sometimes it is neccessary to publicly pronounce your thoughts or your magazine's direction through a short editorial; however, why should this become neccessary every 30 days?

More Information!

Amazing Computing has experienced a rapid growth in the type, style and quantity of information in each issue. The result has been "fat" issues without a single square inch of free space. This has made it difficult to place our own advertisements.

Many good design schools instruct their students in the use and need of "white space." Yet a few publications extend this philosophy too far. I have seen at least one publication use a full page of art to introduce a two-page article.

While illustrations are a great way to extend the written word and give the reader an immediate grasp of your article, some publications tend to forget the purpose of an illustration. It is not unusual to find art in an article which is very well done and pleasing to the eye, but not relative to the article. What value has the reader/customer actually received?

AC has increased the number of illustrations in each issue, and AC will be adding more white space to make our articles easier to read. However, we approach this with extreme caution.

When style supplants information, good, lengthy, technical articles are replaced by the quick fix or the flashy piece to provide stylish art or a hot "blurb" on the front cover. Long listings, which can provide helpful insight into different programming techniques, are swept aside in favor of open spaced, sparsely columned pages for the eye to quickly consume.

Add More Pages!

At first, increasing the size of the magazine seems a perfect solution. However, although no honest magazine's editorial content is directed by individual advertising (a fact that has caused several AC advertisers to balk), the quantity of articles and the number of pages in any issue is directly proportional to the amount of advertising revenue received for that issue. This is basic economics.

At AC, we do everything we can to produce a full magazine without charging a fortune in advertising. AC developed this policy for two reasons:

1. No matter how much hype is running rampant in the Amiga community, AC believes the Amiga market is still developing and the great software and

Continued on page 14

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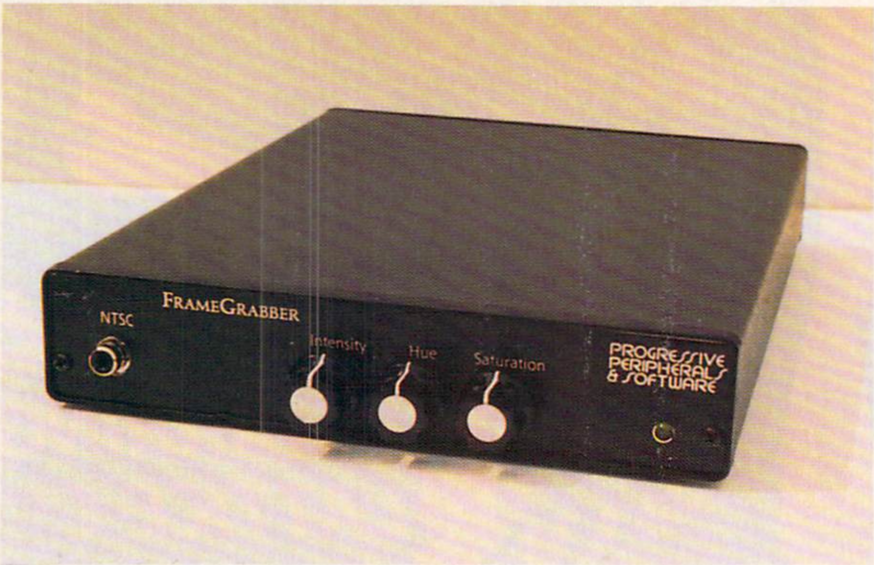
AMIGA
VIDEO

FrameGrabber

reviewed by Oran Sands ***Plink ID OJSANDS***

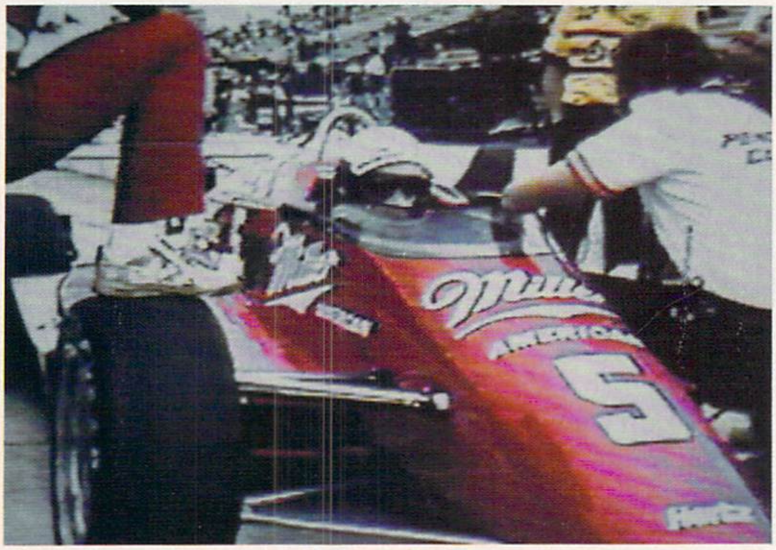
The arrival of FrameGrabber from Progressive Peripherals and Software marks the advent of a new era in digitizing with your Amiga. You are no longer restricted to having your model sit perfectly still for minutes while you putter away with filter wheels. Nor need you settle for monochrome images when you digitize from videotape. Why not? Because the FrameGrabber captures images in only a thirtieth of a second—from any camcorder, videotape or tuner in color or black and white!



Description

The FrameGrabber is a small, unassuming black box, only 6" x 9.5" x 1.5". Packed inside, though, is enough RAM to capture and hold a frame of video. Since you can store the picture information in the FrameGrabber itself, the Amiga is not forced to hold the data. You feed a composite video signal into a jack on the front of the FrameGrabber, press a key on the Amiga, and the picture is "grabbed." No muss, no fuss.

To use FrameGrabber, connect it to your Amiga with your computer's printer cable connected to its parallel port. Connect the other end to a standard 36-pin Centronics port on the back of the FrameGrabber. All data is transferred through this cable. The monitor cable from the Amiga connects to two DB 9-pin connectors. You then attach a supplied cable between the FrameGrabber and your RGB monitor. The last jack on the back of the FrameGrabber connects the external power supply. You don't have to worry about system brownouts when hooking up the FrameGrabber.

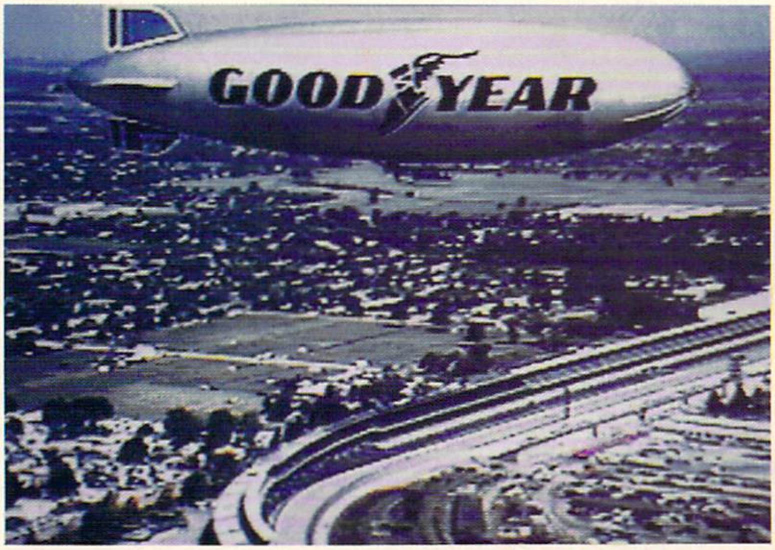


Indy lightning captured from 3/4" tape.

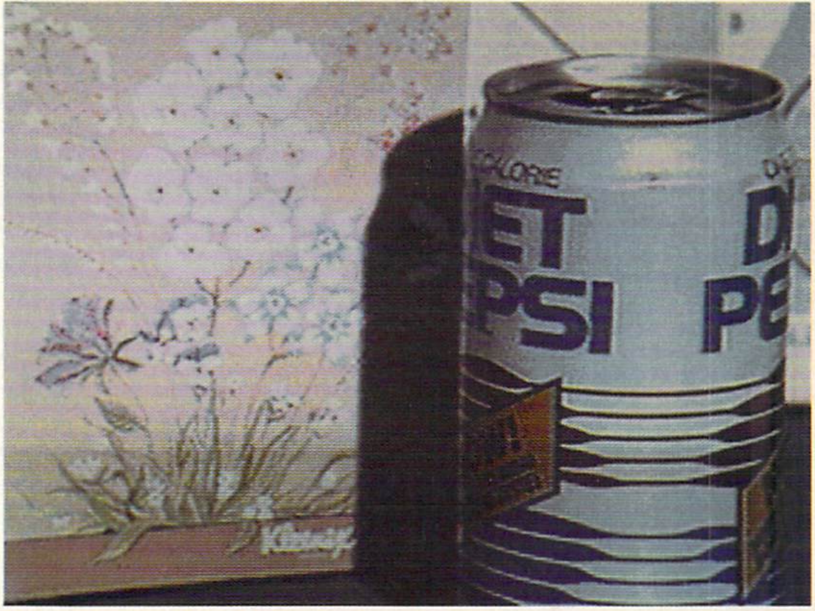
The FrameGrabber's front panel has a RCA phono jack to which you connect a stable composite video signal; any NTSC video signal is fair game. The rest of the panel is taken up by a power LED and three controls.

Operation

Using the FrameGrabber is very simple. After you make sure you are feeding a video signal to the FrameGrabber, fire up the included software. Written by Justin McCormick of PIXmate fame, the FrameGrabber software allows you to select, adjust, and use all FrameGrabber's potential. After selecting a resolution mode, capture a picture by pressing the "c" key.



The famed dirigible grabbed from 3/4" tape.



Live capture of a truly domestic scene.

Recall those monitor-to-FrameGrabber connections? Pressing the TAB key toggles the screen display between the video picture you feed to the FrameGrabber and the normal Amiga screen display. You can adjust the three controls on the front of the FrameGrabber while watching the video. These control the brightness (or intensity), tint or hue, and color saturation of the video signal before it's digitized. You can now tweak a signal until it meets your satisfaction. Once you're certain it's what you want, "grab" it. It's almost a WYSIWYG digitizer!

The Software

The software has many features you've come to expect from a digitizer, and several more. Loading and saving files is a joy, since the program uses the Path-Master File selector used by PIXmate. This must be the single best file requester in existence. If you can't find the file with this requester, it doesn't exist!

The FrameGrabber software allows you to generate and reuse image data in several different formats. The first and usual format is the IFF standard used by almost all Amiga programs. The FrameGrabber produces images in 320 x 200, 320 x 400, 640 x 200 and 640 x 400 modes. FrameGrabber currently supports one overscan mode, 352 x 240. Images are grabbed in 2, 4, 8, 16, or 32 colors (and also 64, if you have the Extra-HalfBright chip), 4096 HAM, or shades of gray in any resolution (with the usual limitations in hi-resolution modes of only 16 colors and no HAM).

The higher resolution modes won't work unless you have enough RAM to support them. The software runs with 512K, but needs 1.5 megabytes of RAM to function fully . You can also digitize in full-screen and quarter-screen sizes. Quarter screen size makes smaller files, useful when storage or memory is a problem.

Other file types supported by the FrameGrabber are the IP, FrameGrabber and RAW data file formats. The IP format file is compatible with DigiView and can be loaded into DigiView. Conversely, DigiView IP files may be used in the FrameGrabber software.

The next file format is a new type called FrameGrabber files. FrameGrabber files store picture data in a

An alien wisecracker grabbed from tuner.

(continued)

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special compressed form, maintaining all raw data in a very small size. RAW image files also store all image data, but do not compress, so the resulting files are huge. A hi-res file can be as large as 768K, nearly filling a disk. If you're into image processing, you may find this file type very useful.

Both single or multiple exposures are available. In the multiple exposure mode, you can digitize one image, then a second image and superimpose the second over the first, and so on. If you are digitizing a still image, you can make several exposures and the software averages the images, resulting in a reduction of any random or intermittent noise in the image.

The Color Bias controls adjust the hue, saturation, and brightness of the picture, and also allow individual adjustment of the red, green and blue components. Unlike other such controls, these allow you to see your changes as you make your adjustments. You don't need to wait for the program to recalculate the picture and display it again.

Another useful feature is the ability to SKIP COLOR 0. This option keeps the program from altering color zero when manipulating the picture. Another option is to SKIP COLOR 0 & 1, which are usually the two colors used for menus. SuperBase Professional is one program in which this feature would be important.

Animation

Perhaps the most incredible aspect of FrameGrabber's software is that it is designed to let you make your own stop-motion animations. You simply digitize the first image and select BEGIN ANIM from the menu. The FrameGrabber saves that image to disk and waits for you to add the next frame. Continue to grab more frames using ADD FRAME to continue the animation file. This process creates Anim files according to the IFF ANIM standard used by VideoScape 3D and The Director.

The animations play back using the PLAY ANIM selection. Playback speed varies from thirty frames per second to one frame per second. ClayMation and stop-frame animation techniques can be done easily, opening a Pandora's box of possiblities.

Time-Lapse Animation

If you've ever watched those films where the clouds boil, churn and fly by, or a rose blossoms before your eyes, you've seen the effects of time-lapse photography. With the FrameGrabber software, you can perform the same magic. Just aim your camera and tell the software how often to grab an image. Walk away and FrameGrabber does its thing. Using quarter-screen size images reduces the normally large size of animation files. You'll have a tremendous amount of fun playing with FrameGrabber's animation modes.

Using the FrameGrabber

I had a great time playing with the FrameGrabber, and I suspect you will too. There are a few things to keep in mind, though, when you try to create digitized images. To keep the amount of Dynamic RAM installed in the Frame-Grabber to a minimum, you must limit the number of bits representing each color. At six bits, FrameGrabber is capable of choosing from 4096 colors, enough for a HAM picture. But this also limits the amount of information available to the software for making decisions on how to dither and shade. Despite this, Justin's software accomplishes pictures

(continued on page 12)

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Friday, July 22nd

1:00-2:30	Introduction to Amiga 500	*Desktop Video Business Forum*	*Marketing Business Forum*
3:30-5:00	Introduction to Amiga 2000		
5:00-6:00	KEYNOTE SESSION - GAIL WELLINGTON		

Saturday, July 23rd

9:00-10:00	KEYNOTE SESSION - R. J. MICAL		
1:00-2:30	Video/Presentation Graphics	Image Processing & 3D Imagery	Desktop Publishing Professional
3:30-5:00	Amiga Animation	Music I - Synthesis & Sampling	Telecommunications

Sunday, July 24th

9:00-10:00	KEYNOTE SESSION - GUY WRIGHT		
1:00-2:30	Amiga Video Professional	Paint Systems and Graphics	C Programming Hints & Tips
3:30-5:00	Interactive Video	Music II - MIDI & Sequencing	Amiga Expansion

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approaching the quality of the best DigiView can create (and without the wait!).

When you digitize from videotape, several problems can arise. When using 1/2" videotape, make sure the tape is high quality. A copy of a 1/2" tape from a 1/2" tape may be too unstable to capture an image from. Some copy-protected tapes deliberately introduce a sync instability to prevent copying. This too can cause FrameGrabber not to lock up properly. On the plus side, I've captured some wonderful pictures from videotape, and this is FrameGrabber's primary use in my studio.

Pick a good section of tape to digitize. Remember, digitizing is like life: garbage in, garbage out! The ability to preview your video is invaluable; I can't imagine trying to frame grab an image without previewing!

Now that you can instantly "freeze" the action, you'll find new problems with which you must be concerned. If the action is moving quickly, you may get a very distorted or blurry picture. Since video is actually a series of images displayed at the rate of 1/30th a second, fast action blurs the individual image. However, the series of pictures is "averaged" by your eyes, so the blur isn't noticeable.

One method that may help is to use the non-interlace modes of digitizing. These modes grab the image in only a 1/60th of a second, freezing not a full frame, but only one of the two fields that make up a video picture. This technique is often used by television professionals to cut down on image jitter caused by slight movement that occurs between fields.

The FrameGrabber manual is quite complete, with large sections explaining animation standards, file standards, and the FrameGrabber port control information. These sections should prove invaluable to the software hacker intent on making his own software. One such hack has already been seen and has come from PP&S itself.

At Spring Comdex in Atlanta, PP&S showed SuperBase Professional with a personnel record application running. After entering the participant's name and other vital information, a representative aimed the camera, pressed a hot key combination that put the FrameGrabber into preview mode, and captured the face. Voila! The victim's mug was now a part of a personnel form. The two programs worked together flawlessly. The number of applications like this are endless.

DRAM prices are driving the price up on everything that uses memory, including the FrameGrabber. This means the FrameGrabber isn't priced like a toy, but considering all it's capable of, it's certainly worth the price. The ease of use and the image quality are sure to appeal to most. If you need to grab a frame instantly in color, if your desired image is on videotape, if you only have a color camera or camcorder, if you want to do stop-frame or time-lapse animation easily, then FrameGrabber is your answer.

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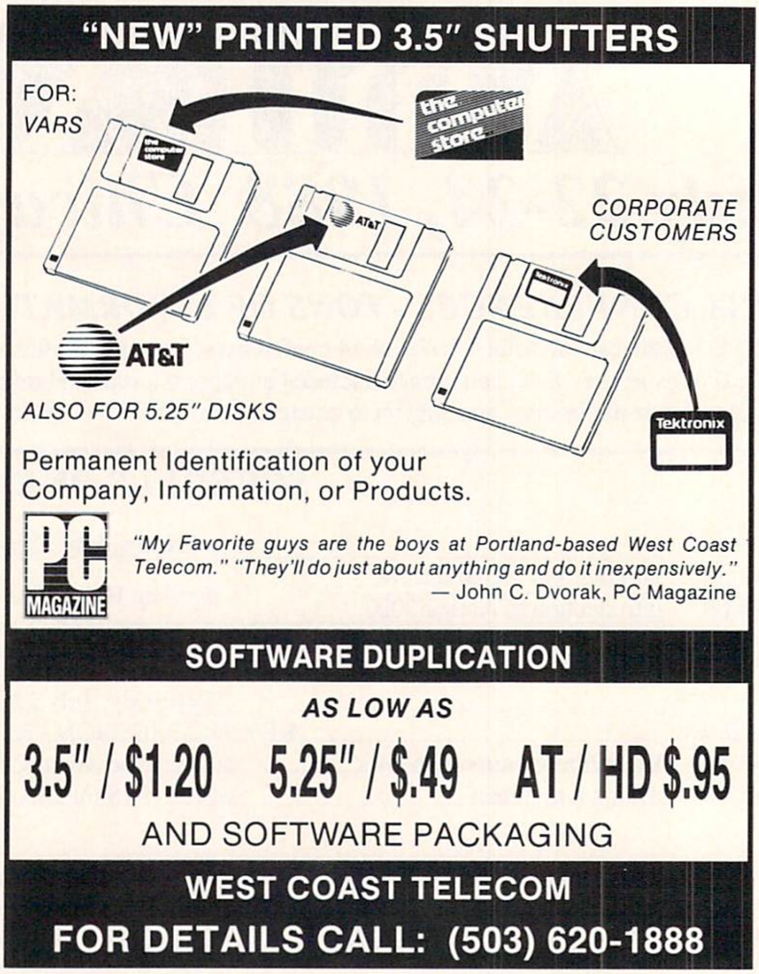

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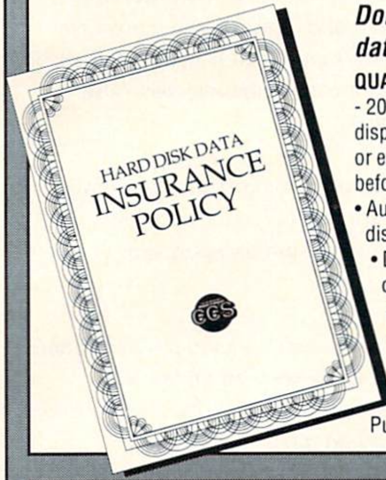

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Continued from page 6

hardware which will place the Amiga in a technological first place with the general consumer is still in development. From experience, most of this innovation will come from small one and two programmer companies.

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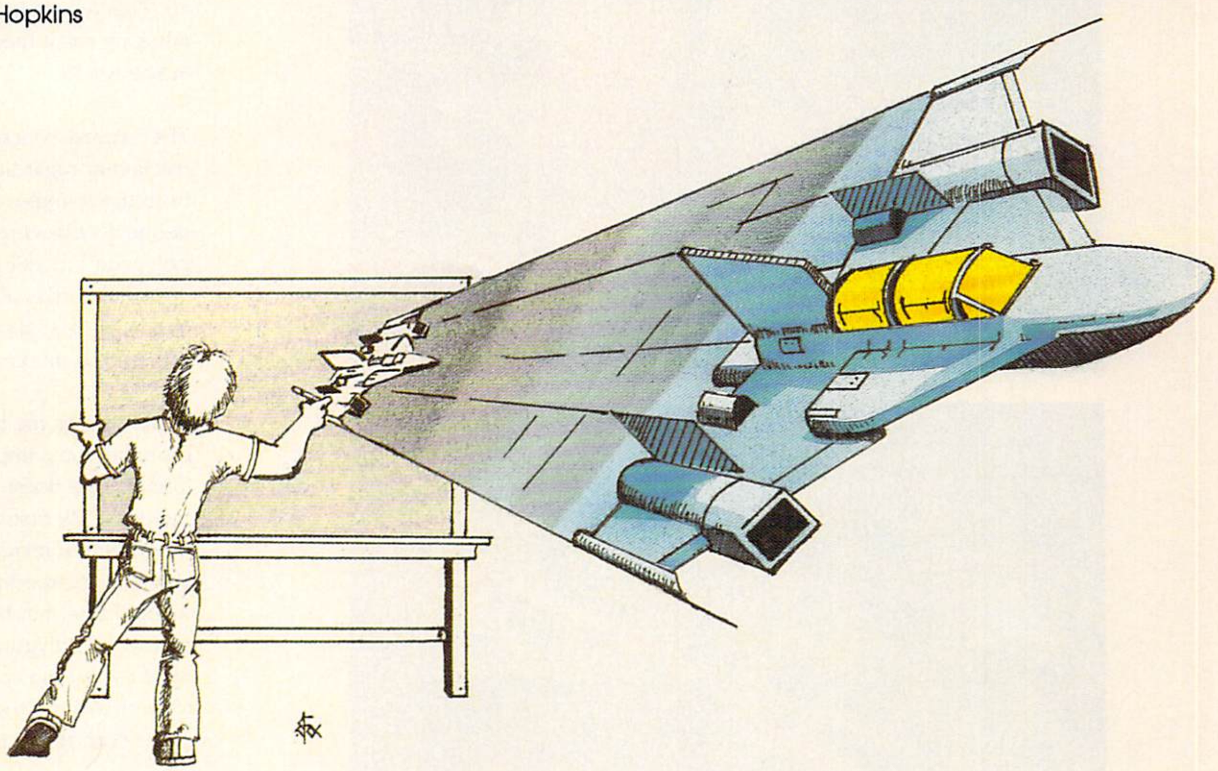
Continued on page 62

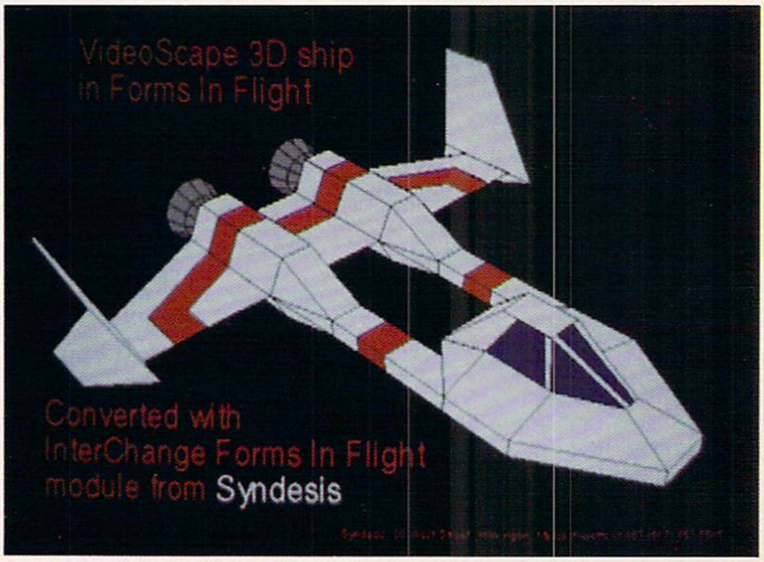
A First Look at *Interchange*

reviewed by David Hopkins



You know how it is. You've found a wonderful object to add to your VideoScape animation. All you need to do now is recreate it as an object. But what about all those curves? Drawing those out on graph paper and figuring the coordinates could take weeks! You could use Aegis' Modeler 3-D ... if it were available. You could use Mimetics' 3-Demon ... if it were available. You could easily create the object with Sculpt 3-D, but the file types are totally different. There seems to be no simple solution. Or is there?

A company called Syndesis says there is. Their new product, appropriately named Interchange, allows one to move object files between previously incompatible animation packages. Objects created with Sculpt 3-D and passed through the Interchange program can be used with VideoScape, or vice-versa. Additional conversion modules are in the works, including Silver, Animator:Apprentice, and the just released Forms In Flight module.

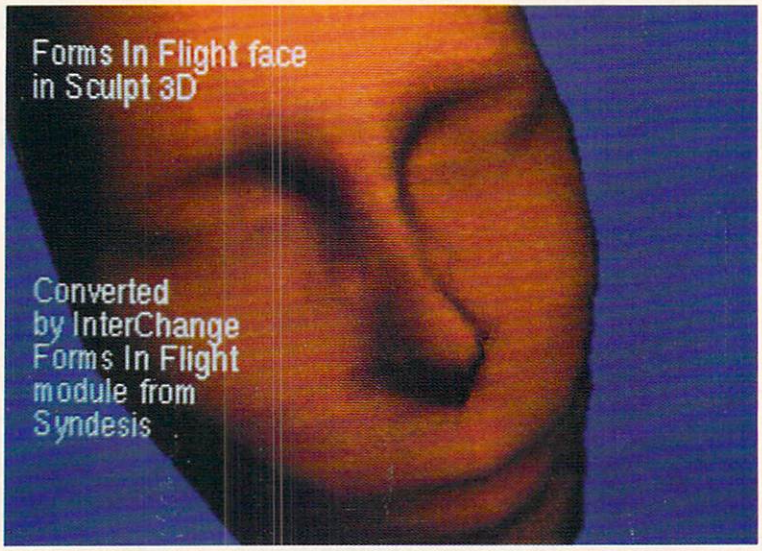


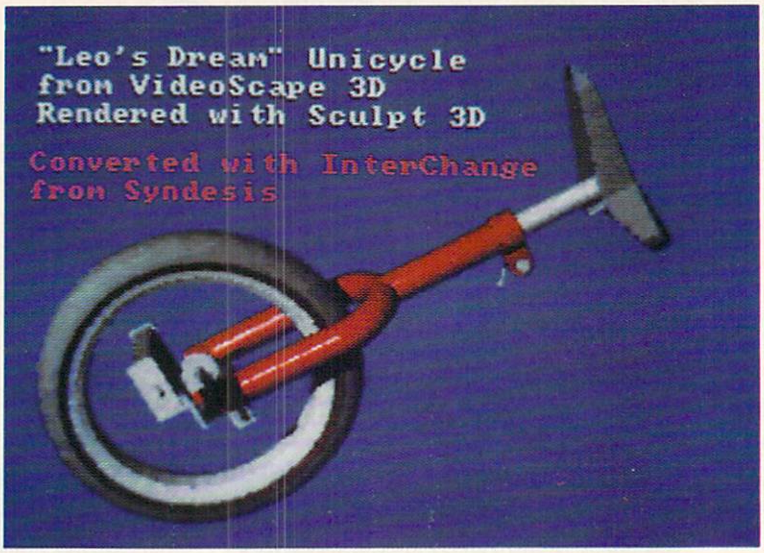
The program itself is easy to use. Double-clicking on the Interchange icon produces a specialized file selection window, which is Interchange. Returning to the Workbench screen, the next order of business is to load the needed modules. For our Sculpt-to-VideoScape example, we would need the Sculpt and VideoScape modules. These are installed merely by clicking on their icons.

Notice that the Interchange window is divided in half. The left half contains the "Available Files" directory, a button to switch to another disk, and the usual Disk, Drawer, and File directory path inputs. The bottom of the left side has a System Message box, which keeps the user up-to-date on the conversion process.

The right side offers another file directory set-up, now titled "Selected Files." Buttons marked "Delete Item" and "Clear All" aren't the only things added to this side. The Output

(continued)





Format box at the bottom of the screen shows what file type the object will be converted to and allows you to change types by pointing and clicking the mouse. Also on this side is "The Button"! This large button, labelled "Convert," is the cue for the Amiga to do lots of math.

The whole conversion process is merely a matter of choosing which file to change via the "Available Files" directory, choosing the final format, and clicking "Convert." Could it possibly be easier? (I know, if the makers of these programs would all agree on one file format, it would be much easier!)

Interchange does have its bad points. First, having to return to the Workbench to load conversion modules is pretty cheesy. Is a "Load Module" option too much to ask? Next, instead of using the usual "Df0:" and "Df1:" disk access buttons, a button marked "Next Disk" is supplied. It toggles between the two drives, but tends to be confusing as to which disk is being examined.

One of the things a potential user should know is the difference in file size. An object translated to VideoScape could be twice as large as one created in VideoScape. The reason is easy to understand.

Most VideoScape objects are defined from only one side—the outside. This means that a person creating a cube knows he never needs to see the inside of it in his animation. So, he defines the polygons from the outside only.

Placing the camera inside this cube would make it appear as though there were no walls around it. Since Interchange has absolutely no idea what sides you're going to look at, it creates them all. This results in larger object files, and takes up extra memory in the VideoScape world.

The manual contains what amounts to a disclaimer regarding the conversions from the triangles that Sculpt uses to define an object to the multi-verticed polygons VideoScape uses, as well as the opposite conversion. It seems that overlapping shapes of different colors can lead to unexpected results.

Which brings me to my last, and probably most important complaint. Interchange doesn't always translate correctly. My first test was to translate the three sample images on my Sculpt disk into VideoScape format. The coffee cup worked fine, but both of the houses had problems. Polygons in the wrong place or of the wrong color turned up, and rotation around them seems to cause even more rendering problems.

Fortunately, my VideoScape-to-Sculpt transfers were a little more successful. Objects such as the F15 and the Lotus automobiles converted perfectly. (These two complex objects look wonderful when rendered with ray tracing, by the way!) The real shadows give me an idea for another VideoScape 3.0 feature. (Allen Hastings are you reading this?)

Due to an inability to get a copy of Forms In Flight before press time, I was unable to put that module through its paces. Look for reviews of that and other future modules in upcoming issues of *Amazing Computing.*

Interchange may not be perfect, but it will sure make designing objects a lot simpler for a lot of users. It sells for $49.95 with the VideoScape and Sculpt modules, and returning the registration card will get you a free upgrade module. These modules are otherwise priced at $19.95.

•AC•

PERFECT VISION

reviewed by Bryan Catley

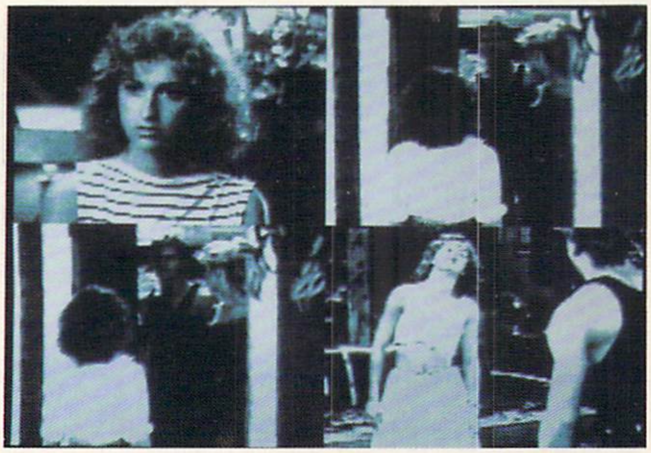
Capture, digitize, and save pictures from any video source.

Perfect Vision (Version 1.1) is a combination of hardware and software which allows you to capture, digitize, and save pictures from any video source—VCR's, TV's (with video output jacks), video cameras, etc.

What exactly does this mean? Well, it means you can literally "capture" any video picture (from almost any source), massage it if you wish, and then save it in the standard Amiga IFF format for later use in programs such as DeluxePaint and DigiPaint.

Perfect Vision also allows you to capture black-and-white images in real time. In other words, if you provide real time (moving) input from a VCR or TV, Perfect Vision will capture a black-and-white image every 1/60 of a second (or 1/30 if you're in interlace mode), and display it on the monitor. Note because of the time it takes to display an image, you see a new image only about twice a second.

Capturing an image in color requires a video camera (color or black-and-white), a perfectly still subject, and three different exposures: one in red, one in blue, and one in green. These three exposures are made (naturally enough) through red, green and blue filters provided in the package.



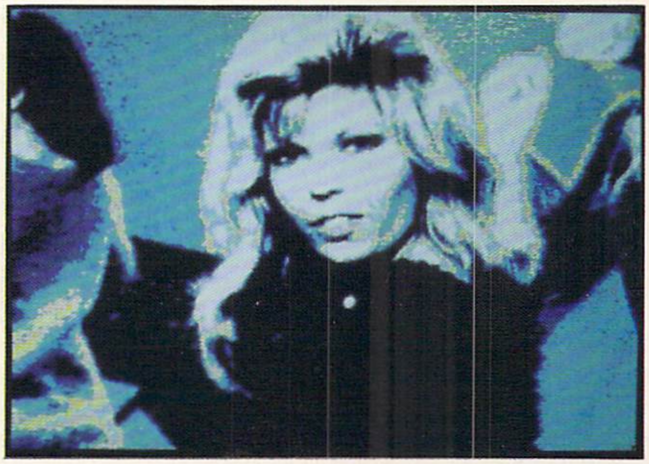
A menu option allows you to see four images on-screen at once.

The Package

The Perfect Vision package includes a disk containing the necessary software (not copy protected), documentation, the three colored filters, and the "black box" which contains its own 64K of RAM memory. Actually, the "black box" is colored to match your Amiga. It is about as wide and deep as an external disk drive and about half as high. (Mine sits on top of my external drive very nicely.) There are also brightness and contrast controls on the front of the box and an on/off switch on the back.

The "black box" connects to your Amiga via the parallel port and uses a standard printer cable for the connection. This means if you do not have a printer connected to your parallel port, you will probably need to purchase a printer cable as well.

While there is no pass-through (meaning you cannot have your printer and Perfect Vision connected at the same time), you can switch back and forth just by disconnecting one unit and connecting the other; just make sure both units have their power turned off before you do this. This approach is not perfect, but it is better than the approach of other products that use this same port—many others require a "power off" shut down to change units!



Nancy Sinatra captured from tuner.

(continued)

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Set-Up

Setting up Perfect Vision is easy! To set up the software, copy the original disk (as always), then boot your Amiga using the copied disk, exactly as recommended in the documentation. While this may be appropriate if you have a 512K machine (the disk contains a stripped down version of Workbench), it is not strictly necessary if you have one MB or more of memory.

A pet peeve of mine is having to reboot the machine every time I change applications. So, I just created an application disk containing Perfect Vision, along with its associated files. When I want to use it, I just insert the application disk in my second drive. This way I have plenty of space on the disk for saving digitized pictures. I copy them to their permanent homes a little later. Perfect Vision may be executed via Workbench or CLI.

The hardware is even easier! Disconnect your printer cable and plug it into the back of the Perfect Vision "black box," plug the box into a power supply (using the supplied wall transformer), plug in a video source (RCA jack required), turn it on, and you are all set to go! When setting things up initially, forget about color and concentrate on black-and-white. I suggest hooking up Perfect Vision to the video output jack of your VCR or TV to get things going.

The only thing left to do is adjust the brightness and contrast controls on the front of the box. But to do this, we need a picture—so execute Perfect Vision! A title screen will appear with a series of gadgets (the documentation calls them a menu) across the bottom of the screen. Click in the "Cycle" menu item and a new set of menus will appear.

A new black-and-white picture will appear every half second or so, following the TV picture, but about a second or two behind what is actually appearing on the TV. (Note that if the brightness and contrast controls are way off, you may not see any picture initially.) Follow the instructions in the documentation and you will end up with a good-looking black-and-white picture which cycles in real time.

The biggest problem you will most likely have is not seeing the results of your adjustments immediately; you have to wait for a digitized picture or two before they take effect. However, once you get used to this delay, you will find you can make pretty fine adjustments. (If necessary, you will be able to fine-tune these two controls via the software after you have captured a picture.)

Once you have these controls set to your liking, you are ready to start digitizing! By the way, those menus (gadgets?) which appear across the bottom of the screen may be toggled on and off with the F10 key.

Modes of Operation

Perfect Vision operates in a number of different modes, but I have always been a little confused by the advertisements and the product documentation. The following table should make things a little clearer for everyone!

Mode	*B/W*	*Color*	*Real Time*	*OverScan*
320x200 16 gray scale	Y	-	Y	Y
320x400 16 gray scale	Y	-	Y	Y
320x200 32 colors	-	Y	N	Y
*320x400 32 colors	-	Y	N	Y
320x200 HAM	-	Y	N	Y*
*320x400 HAM	-	Y	N	Y

* Requires at least one megabyte of memory.

You should note that the overscan, in which the entire screen, including the border, is filled with the picture, is not a true overscan, but rather a mathematically enlarged picture. This implies some deterioration of picture quality, but it certainly wasn't obvious.

Digitizing in Black & White
Click on the "Four" item. You will now see four pictures on the screen at the same time, one in each quadrant. Click on the "One" item to revert to a single, full-screen picture. Note that while you have four pictures on the screen, only one is in the capture buffer. This means when you click the "Exit" item, you will capture the most recent picture displayed, not the four currently being shown on the screen.

The last menu item is "Record." This (I think) falls into the category of "great to have," but it will probably be used only by the few people who have a distinct need for this capability. What is the capability? All displayed pictures will be recorded in memory until it is exhausted, or a specified maximum has been reached. When "Record" is selected, a new menu appears which gives you complete control over these "recorded" images.

Once you have captured a picture, "Exit" will take you back to the main menu. You will then have a choice of other menus providing you with various options for massaging your picture.

"Effects" provides you with a number of options for working with the 16 shades of gray the picture was captured with. After using them, I am convinced they will be useful to desktop publishers. You can produce some pretty startling results just by printing the picture after using some of these options! (The menu also includes an "Undo" option in case you don't like the results of the last operation).

"File" allows you to save your picture in either IFF or "raw" format, or load a previously saved (in either format) picture. IFF allows the picture to be used within other programs which also support the Amiga standard IFF format, such as DeluxePaint, etc. "Raw" is a special format (defined in the documentation) which allows the saved picture to be massaged by other (especially AmigaBASIC) user-written programs. The final item in this menu is "OS" which mathematically creates an overscan picture which you may also save in IFF (but not "raw") format.

The next main menu item, "Color," is used exclusively for digitizing in color. We'll talk about that later.

The last operational main menu item is "Options," and is the menu which allows you to really take off with your black-and-white digitized pictures! It is probably worth taking a quick look at all the options:

Exit - Returns you to the main menu.

Lace - Toggles back and forth between non-interlace (200 lines) and interlace (400 lines). With black-and-white pictures the change is instant, and both pictures will fill the whole screen. But with some programs, switching to interlace causes the current display to occupy only the top 200 lines of the display. This option is not as flexible when using color—more about this a little later.

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Palette - Presents a palette of the 16 gray scales which you may change to any color you wish. Remember, when dealing with gray scales, the same level of gray may be used in both back and foregrounds, making the conversion of gray scales to acceptable colors a little more difficult than you might think.

Color - Toggles an arbitrary palette of 16 colors to the current picture and back to black-and-white. This option produces a very "artistic" picture which may or may not be useful to you. You can modify the arbitrary colors by using the Palette option.

R, G and B - Individual items which toggle red, green, or blue tinges into the current picture, individually or in combination. The most useful feature is to produce "old-time" looking results.

Fade/Slow - A toggle item which determines how each newly digitized black-and-white picture is displayed. The resulting display is purely a personal preference and is fully described in the documentation.

Digitizing in Color
While using Perfect Vision, you cannot capture color pictures in real time. You must use a video camera (black-and-white or color) and the three red, green, and blue filters provided. This means that your subject must be perfectly still!

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Best results are obtained using a black-and-white camera on a copy stand illuminated with a pure white light. If a color camera is used, Perfect Vision simply strips away the color signal. However, because of internal differences, a black-and-white camera will produce a sharper image. The documentation mentions the Panasonic WV-1410 camera (without specifically recommending it) as suitable, and Sylvania B2 SuperFlood EBW bulbs for the best light.

I might also mention that while you can digitize in almost any light, good lighting is very important if you want bright and accurate color reproduction in your final picture.

After you set up the camera, you must focus it. The documentation suggests (and I wholeheartedly agree) you hook the camera directly to your monitor for this task; they say that focusing the camera using digitized pictures is, I quote, "just a big pain." Of course, you will need to switch your monitor to "composite" mode to do this. Once the camera is focused, plug it back into the Perfect Vision box, and switch the monitor back to RGB.

Click on the "Color" menu, and a new menu comprised of "Build Buffers," "HAM," "32 Color," and "Exit" will appear. When you do this, you enter what internally is a new mode of operation. Therefore, make sure you set interlace or non-interlace before starting! Unlike the case of black-and-white, you cannot switch back and forth; when you leave the Color menu, it appears you also lose any picture you may have.

Click on "Build Buffers" and a small black-and-white picture of what the camera is seeing will appear in the upper-left corner of the screen. A new menu will also appear:

Exit - Returns to the "Color" menu.

Red, Grn and Blu - Three items. Hold the red filter under the camera lens, wait for the camera to adjust itself (watch the small picture), and click on "Red" to fill the red buffer. Repeat this for "Grn" and "Blu," and all three color buffers will be filled.

Load - Loads all three color buffers from a previously saved file.

Save - Saves the three color buffers in the previously described "raw" format.

Now/Pause - A convenience item. When "Now" is in effect, each color buffer is immediately filled as a color menu item is clicked. However, when "Pause" is in effect, there is a built-in delay of six seconds between clicking and filling the buffer. This feature is useful when you are working by yourself and the camera is not close to your Amiga. The end of the delay is announced with a "beep."

Once all three buffers are filled, click on "Exit" to return to the "Color" menu, and then select either "HAM" or "32 Color" to create your picture. Both menus have similar items which allow you to "draw" the picture (there is a distinct delay as the color picture is constructed from the red, green, and blue images), save the image in IFF format, load a previously saved IFF image (32 Color only), create an overscan picture, save the overscan picture in IFF format, and adjust the brightness, contrast, and amounts of red, green, and blue to be used in the following "Draw" operations.

HAM also has a "Fast Draw/Slow Draw" toggle. In "Fast Draw," the picture is drawn very quickly, but with an obvious loss of sharpness. Nonetheless, it is very useful to check on the effect of previous color adjustments.

"32 Color" has a "Palette" item which allows you to modify the colors chosen by Perfect Vision. It also allows you to "lock" a palette of colors, forcing this palette to be used in all subsequent digitizings. This is very useful when creating a series of pictures where it is important that all pictures are made up of exactly the same colors, such as backgrounds for use in animation sequences.

Note that when you are working in color, the "Effects" and "Options" menus are not available to you. If you try to use them, you'll lose your current picture and quite possibly get Perfect Vision totally confused. (You still use "Options" to select interlace and non-interlace, but only before entering color mode.)

An Extra Cost Option

If you have a color camera, or a good quality VCR that can produce a stable picture when in "pause," you may want to consider purchasing a color splitter. These splitters accept a color signal as input and then break it down into its red, green, and blue components. When plugged into Perfect Vision's "black box," the three color buffers are filled automatically, allowing you to dispense with the three filters, or capture a color image directly from a VCR.

Any commercial color splitter will probably work, but the makers of Perfect Vision plan to have their own splitter on the market by the time you read this. Projected cost is around $100.

Remember, using a color splitter will still not allow the capture of color images in real time—I am told the image must remain still for about one-and-a-half seconds.

Problems and Areas for Improvement

Overall, Perfect Vision is a good, inexpensive digitizer that you can set up and use easily. It will produce good quality pictures in any of its operational modes. However:

The separation of the black-and-white and color modes is not made clear enough, neither by the documentation nor by the menus. The implication is that all menus are available in either mode. Not so!

HAM pictures may only be saved, not loaded. Once they are saved, you will only be able to use them in programs such as DigiPaint, PIXmate, etc.

Although Perfect Vision is essentially bug free, I found I could sometimes confuse it by switching back and forth between interlace and non-interlace modes a number of times using the same picture. (Loading a black-and-white picture while in color mode, or vice versa, also caused some internal confusion.)

The documentation, while it contains most of the information you will need, is very unprofessional in appearance and should probably be revised.

The ability to lock a palette for future pictures is useful, but I would also like to be able to force a loaded picture into using a previously locked palette. In fact, the whole idea of being able to save and load entire palettes is quite appealing...

If the parallel port must be used, some sort of software controlled A/B switch would be very useful. Just think, with the addition of some printer routines, it would be possible to digitize and print a picture from the same program!

The three filters do the job, but they are not the most convenient things in the world to work with. A wheel containing red, blue, green, and clear segments, which could be mounted directly on the copy stand, would be a vast improvement.

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An option (extra cost, I'm sure) which would allow the capture of color pictures in real time would be very, very welcome!

Some of the "improvements" suggested above may belong in a paint program. The obvious question is where to draw the line between a digitizer and a paint program. I don't pretend to know. But I do believe there should be some overlap—for sheer convenience if for no other reason.

Finally...

If you purchase Perfect Vision, I don't think you'll be disappointed. It does a very good job for a very reasonable price. Just remember to send in those registration cards. Like with most new programs, improvements will be made, and registration is the only way of insuring you will find out about them and will be able to receive them at the lowest price possible.

•AC•

Perfect Vision, Version 1.1
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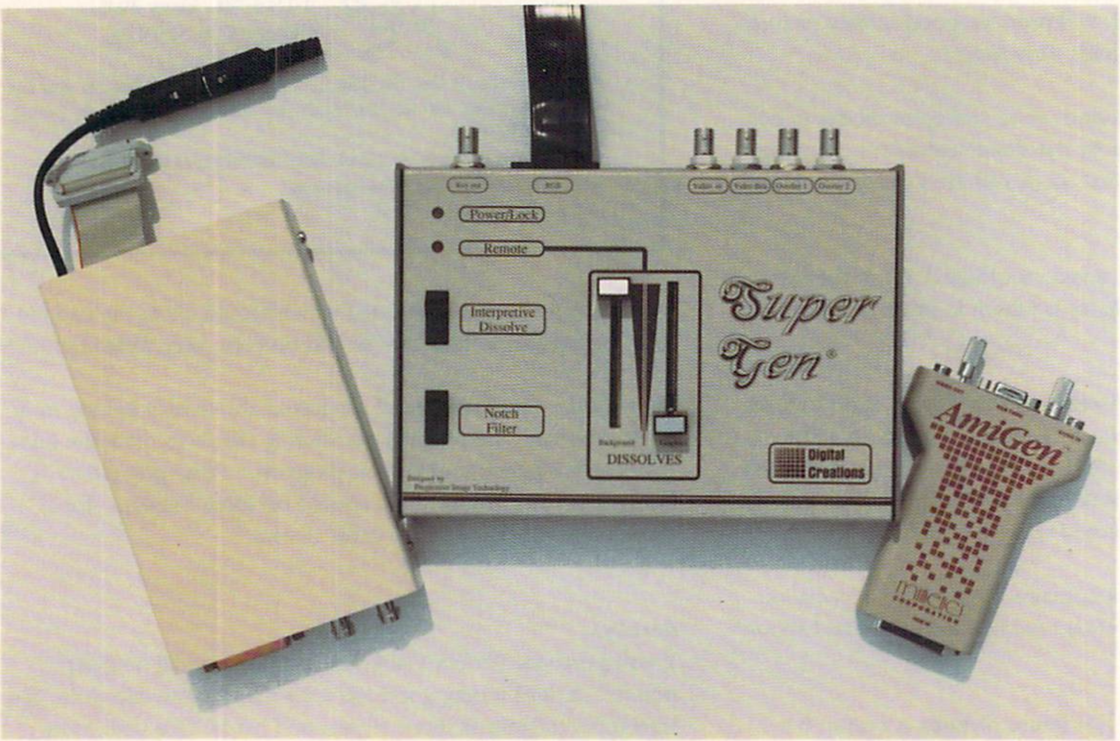
AMIGA VIDEO

Look, up on the screen, It's an Ami... It's a Pro... It's SuperGen

by Larry White

Bring Amiga graphics to your videos with a choice of genlocks.

Amiga graphics and animations can be incredible. To make them useful, though, it's often necessary to take those graphics off your computer, convert them to a standard video format, and record them on video tape (VHS, BETA, 8 mm or professional 3/4 or 1 inch formats). Sometimes you may want to add live or other recorded video. Several devices are available that take the 23-pin RGBI output from the Amiga and produce NTSC composite video (the same video signal your VCR uses). Genlocks synchronize the Amiga's computer graphics with an external video source (such as a VCR or video camera) and can produce a composite video signal which has both the computer's image and that of the live video source.



Genlock trio (left to right) ProGEN, SuperGen, and AmiGen.

Commodore got the Amiga ball rolling with its 1300 Genlock, but this unit works only on the A1000. Newer genlocks are compatible with all three models (Commodore has not released a new version to date). Let's take a close look at three recently introduced genlocks for the Amiga—Mimetic's AmiGen, Progressive Peripheral's ProGEN, and Digital Creations' SuperGen. They range from under $180 to over $750, and from a basic genlock to a genlock with a sophisticated, software or slide switch-controlled video fader.

Why Genlock?

The clue is how video creates an image. In the United States, Canada, and Japan (and a few other countries), the television system is based on standards set up by the NTSC (National Television Standard Committee). This standard calls for a 525-line interlaced video picture, meaning the picture is composed of 525 horizontal lines, divided into two fields of 262.5 lines. The first field is composed of the even-numbered lines; the second is composed of the odd-numbered lines. The two fields make a frame and are updated 30 times per second.

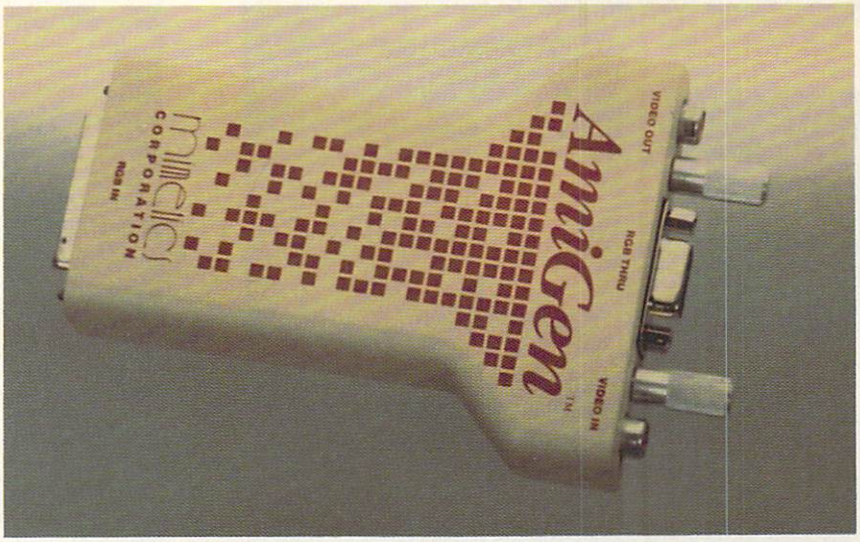
Scanning starts in the middle of the top line (often out of view on most televisions) and moves from left to right. When the beam reaches the right side of the screen, it turns off (blanks) as it swings back to the left, and then begins to draw line three. At the bottom of the screen, the beam turns off as it returns to the almost-top left (vertical blanking) as it begins to draw line 2. When it reaches the bottom of the second field, a vertical sync pulse tells the system to start over at the top with the next frame.

If you simply connect two video signals, the timing between the two frames would probably will not match. The resulting image will be full of glitches and probably "unwatchable." The genlock finds the sync pulses from the external video. Since it is difficult and expensive to control the external video, the genlock controls the computer video and synchronizes it with the external video.

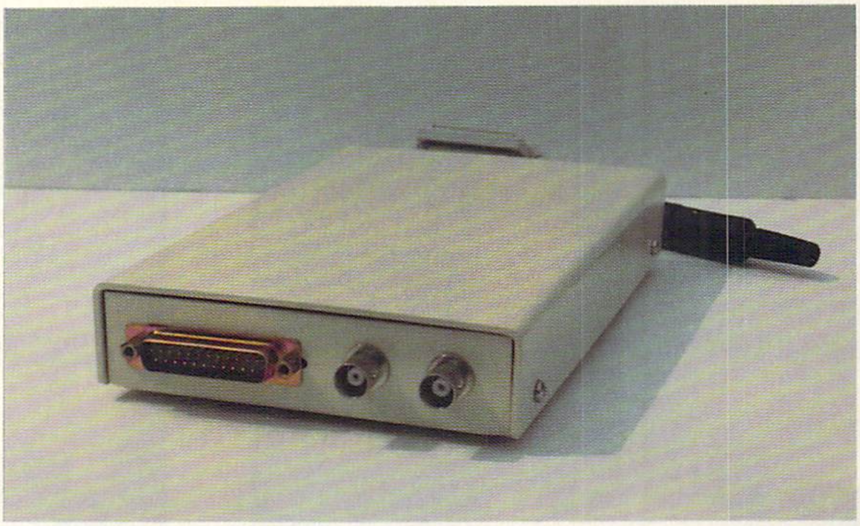
Where Does the Graphic Go?
If we merely synchronize the two video signals, both images appear on the monitor at the same time and look like a double exposure taken with a still camera. The genlock removes part of the computer graphics and replaces it with the live video.

In the simplest genlocks, and the most basic mode of the sophisticated units, the Amiga's background color (color register 0) is blocked and replaced with the external video. This is called background mode because your external video replaces the background of the picture. For example, for the standard Amiga Workbench screen, the blue background would be gone. Replaced with the incoming video and the menu bar, pointer and disk icons appear to be floating above the video picture.

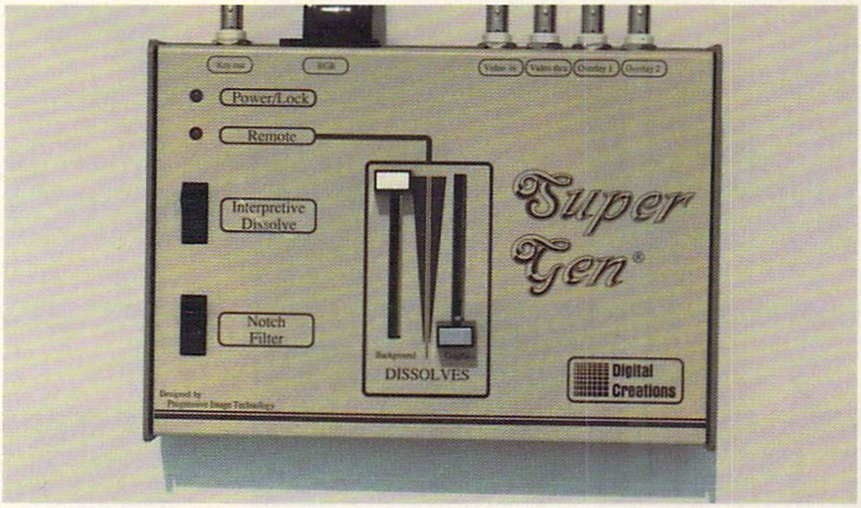
(continued)



***AmiGen** from Mimetics is a basic genlock at a budget price.*



***ProGEN** from Progressive Peripherals & Software takes the next logical step in versatility, but the price also takes a step up.*



***SuperGen** from Digital Creations offers manual or software control, but once again ups the ante.*

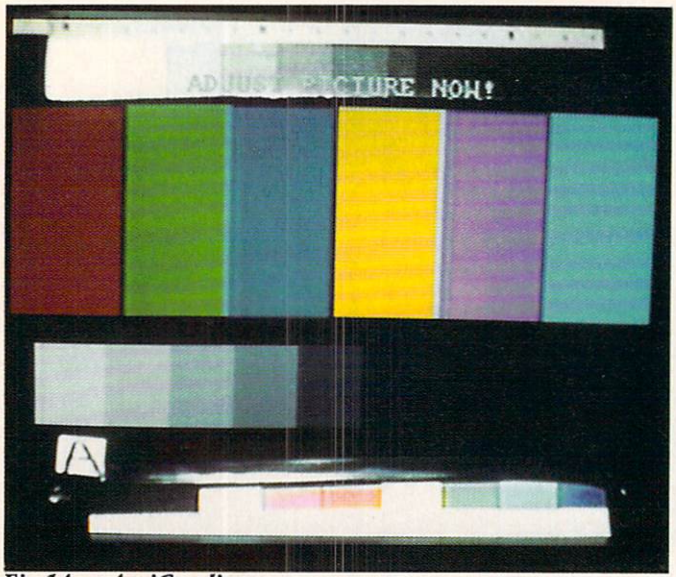


Fig 1A — AmiGen live

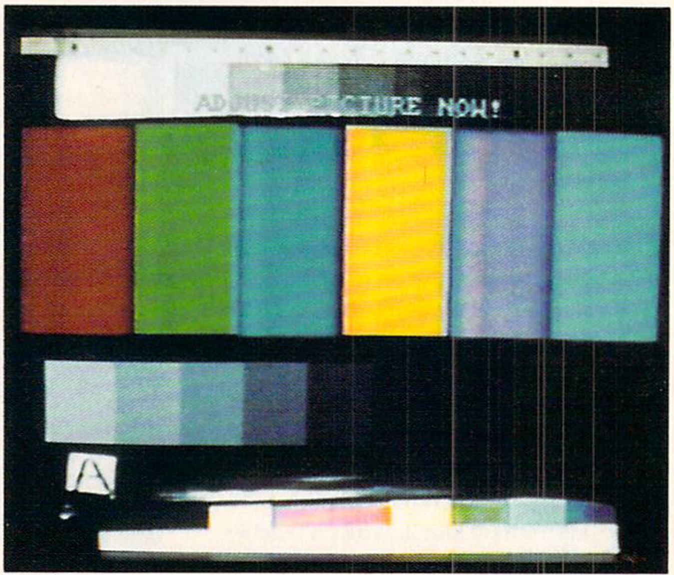


Fig 1B — AmiGen taped

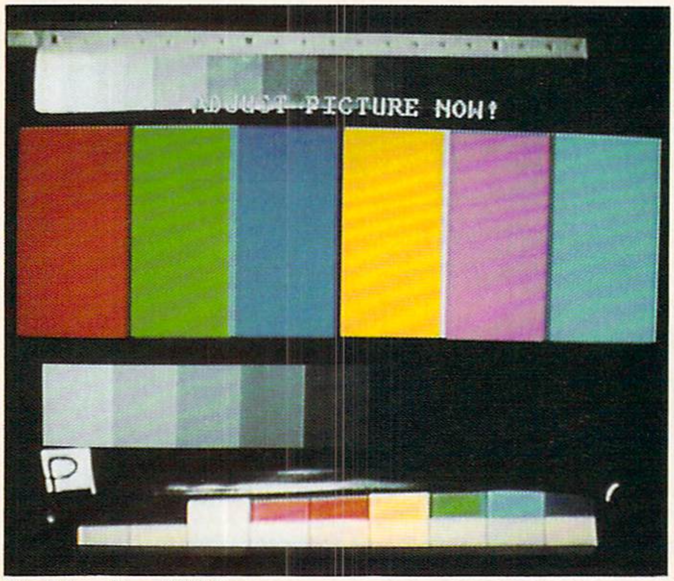


Fig 2A — ProGEN live

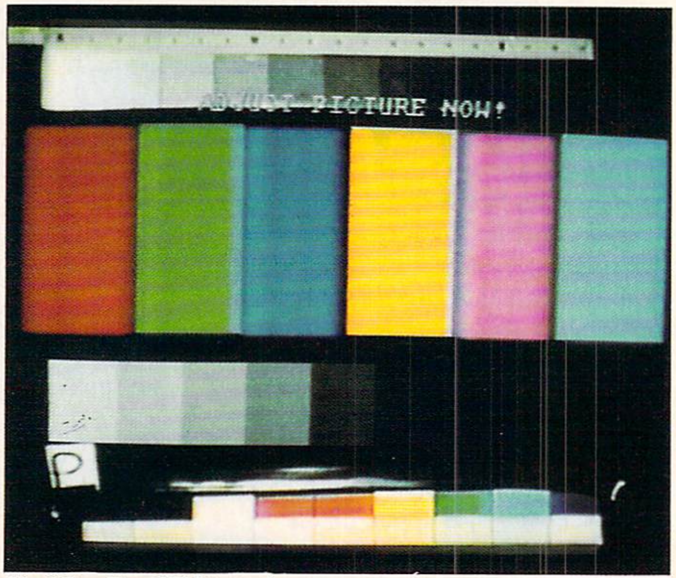


Fig 2B —ProGEN taped

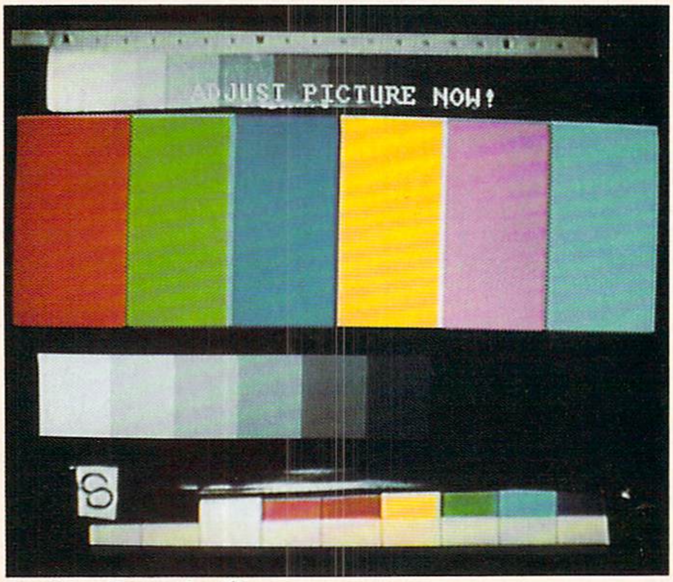


Fig 3A —SuperGen live

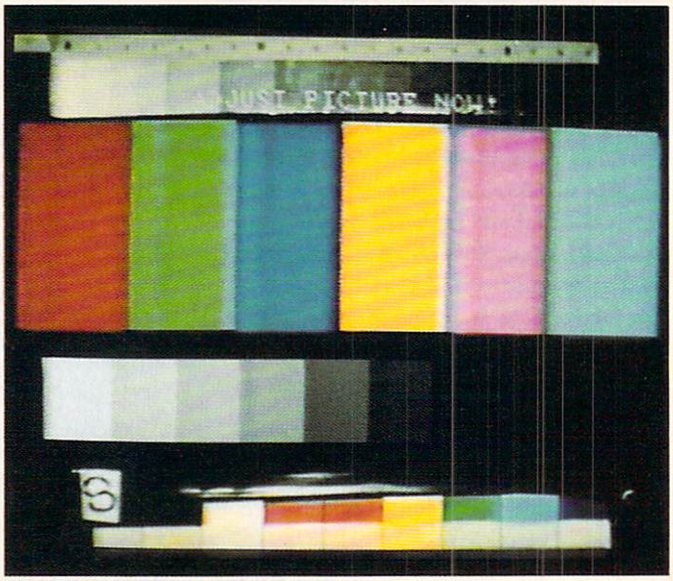


Fig 3B —SuperGen taped

Side by Side by Side

Here's how the genlocks stacked up. I created a video test chart using DPaint II, and genlocked its playback with a special "target", captured live with my Canon VM-E2N camcorder. The top gray scale and lower color patches are from the "live" target, while the larger targets in the center are generated by the Amiga. Tests were recorded on a Panasonic VHS recorder in SP mode. All screen shots were taken in succession from a 27-inch NEC TV/Monitor with a Ricoh XR-P in special TV sync mode without changing the settings.

AmiGen live: Good color saturation, nice sharpness, red slightly dull. The camera image seems slightly bright compared to graphics.

AmiGen taped: Colors still well saturated, but the cyan patch has run into magenta. Image quality was greatly affected by the recording process.

ProGEN live: Bright, well-saturated colors. Good balance between camera image and computer graphics.

ProGEN taped: Colors still bright and saturated slightly less than live image. Again, the recording process is major culprit.

SuperGen live: Bright, crisp, clean patches with excellent saturation. Camera colors make a good match to Amiga graphics.

SuperGen taped: Colors still bright, but edges have been softened by recording process. Saturation has been slightly reduced.

If we remove the remaining colors, we are in foreground mode. There are more variations, making this a little more complicated, so we'll get to the specifics with each genlock. In the extreme case, if we use the Workbench screen, the blue background would be present with the live (or recorded) video peeking through the disk icons.

Setup for Genlock

Before we get into the specifics of each unit, let's spend a few minutes discussing what additional cables and equipment you need.

The genlocked video signal is NTSC composite, and does not appear on your monitor, which normally uses an RGBI display. You won't need an extra video monitor if you're using an Amiga 1080, 2002 or 1084 monitor. These monitors can be switched to composite video with a video cable connected to the RCA jack, even with the standard RGBI cable still attached. Although AmiGen requires a different cable, all three genlocks have RGBI passthrough. You can switch back and forth between your usual crisp, well-defined Amiga screen in any resolution mode and your genlocked video image by pressing a button on the 1804 or flipping a switch on the 1080 or 2002.

You may still want an additional monitor so you can watch the external video and the Amiga monitor simultaneously. This can be handy when you set up your external video because you can preview the external video and match it properly with the computer graphics.

Since NTSC video is interlaced, you'll want to set the Amiga to interlaced mode, regardless of screen resolution. The A1000 can "sense" some genlocks (such as the Commodore 1300), and should set interlaced mode automatically. If you're using an Amiga 500 or 2000, you must set interlaced mode with software. Each genlock comes with a software disk and a program to activate the interlaced mode. (With some programs, interlace must be on whenever the genlock is connected, or the system clock may be affected!) I installed this program as part of the C directory on my Workbench disk to be called from my start-up file. Interlace is always set "on" as part of my bootup sequence.

You'll also need some shielded video cables with either RCA or BNC connectors, depending on the genlocks and video equipment you're using. (RCA-to-BNC adapters can be purchased at Radio Shack for a few dollars.) I prefer heavy duty cables with gold contacts for the best performance with minimal interference. Keep the cable lengths as short as possible for optimum signal quality.

You might want to add some video switching equipment, additional external video sources, and video processing equipment. These expenses can range from under $50 for a signal booster to over $1000 for a more sophisticated system.

AmiGen: A Basic Bargain

Measuring just 2.25" (flaring to 3.5") x 4.5" x 1", Mimetics' AmiGen (originally announced as ImaGen) is a compact add-on which plugs directly into the Amiga's RGB video connector. On the opposite end of AmiGen are two RCA video jacks: one in, one out, and a 9-pin RGB passthrough.

AmiGen has no other external controls or switches. If you're using the RGB passthrough, you'll need to pop open AmiGen with a small screwdriver and remove the 100 ohm, 6-pin, 5-resistor terminator. Be sure to tape the terminator to the inside of the genlock unit—it's easy to lose. You'll also see three pots for adjustments. Brightness and tint are user adjustable, while the third pot is for factory adjustment only, requiring special equipment. If you need to adjust the tint and brightness, AmiGen can be attached with the top cover removed. You may never need to do so, but this procedure is well documented in the AmiGen instructions.

(continued)

Turn the two knurled knobs to secure the genlock to the back of the computer. Attach the video-out to your VCR and/or monitor. If you're using the RGB passthrough with either a 1080 or 2002 Amiga monitor, and you want to keep your genlock in place full time, you'll need a 9-pin male-to-female cable. If you're using the 1084, you'll need a special cable (unfortunately, one of the few that doesn't come with the monitor).

Boot your Amiga, but don't forget to use the "Setlace" utility, or some "interesting "effects may result. If the interlace mode is not active, the system clock is slowed by a factor of two. The difference may be barely visible with some programs, but run the clock on a music program and I assure you the results will be less than satisfying. AmiGen does not require an incoming video signal to operate, and is ideal for videotaping your Amiga session for demos, or your animation for playback on a VCR.

Switch your monitor from the RGB input to the composite video, add the incoming video from a camera, VCR, laserdisk, or other external video device, and the magic begins. The background color is replaced with the video from your external source.

AmiGen produces a good image, which should be all you need for most video titling and many other applications. The image conforms to standards and can be used for broadcast. If you want to experience genlock without a major investment, or if you plan on being an occasional genlock user, I highly recommend AmiGen, especially with its list price of only $179.

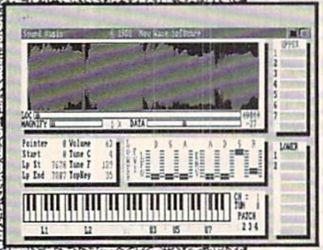
ProGEN: Choice of Modes

Looks can be deceiving. And the plain, beige, 4.75" x 7.5" x 1.25" box that arrived from Progressive Peripherals & Software didn't look like much—until I plugged it into the RGB port of my Amiga 500.

The ProGEN is physically unassuming: a 23-pin connector at the end of a 1.5" ribbon cable, and a 9" cable with a 5-pin female DIN connector at one end, two BNC video connectors (you may need those BNC to RCA adapters), and a 23-pin RGB passthrough at the other end. The unlabeled BNC connector next to the RGB connector provides composite video out, while the other is for incoming, external video. The 23 -pin connector is identical to the one on the back of the Amiga and accepts the same monitor cable you're already using.

Connect the ProGEN. Boot the Amiga and set the interlace with the provided software. Switch the monitor to composite video and the picture is similar to the one described for AmiGen, with the background color (register 0) replaced with the external video.

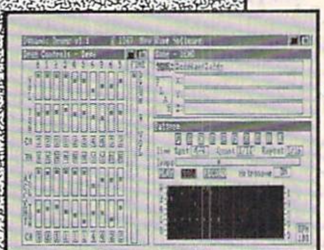
ProGEN comes with a male 5-pin DIN connector, which you'll want to use. The male DIN connects the cable alongside



Sound Oasis

$99.95

The internal sound capabilities of the Amiga are better than that of any other personal computer. These capabilities mean nothing though, without quality digital sounds, which up till now have been scarce. Sound Oasis gives Amiga owners access to a large library of studio-tested digital samples, by using the Amiga's built in disk drive to read disks made for the Mirage Digital Sampling Keyboard. Sounds can then be played from a MIDI keyboard, the computer keyboard, or saved as an IFF standard file. Mirage is a trademark of Ensoniq Inc.



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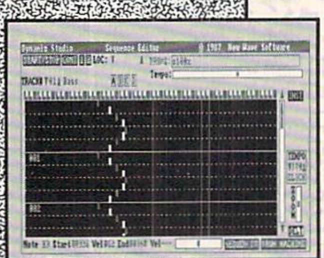
Transform your Amiga into a professional-quality drum machine with this software package. Easier to use than hardware-based drum machines because everything is displayed graphically on screen. Enter drum patterns quickly and easily in real time with visual feedback and editing. Create realistic drum tracks with any of the 100 drum and percussion samples that are included or use your own unique IFF one-shot samples. Dynamic Drums also has full MIDI implementation and even becomes velocity sensitive when triggered from a MIDI keyboard.



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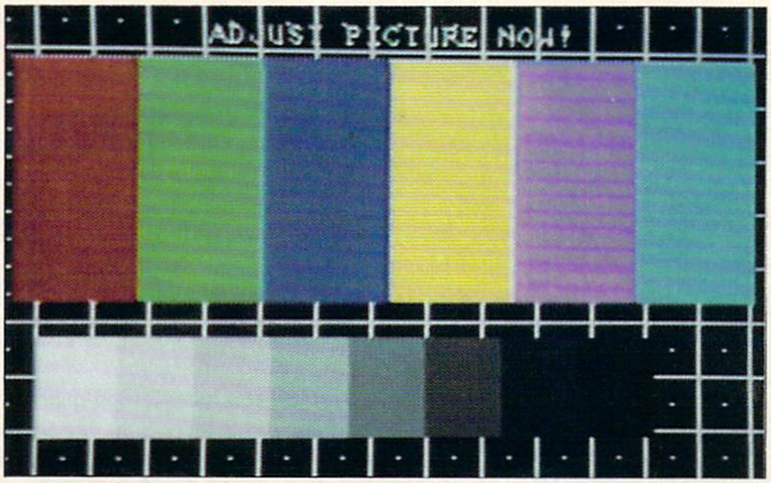
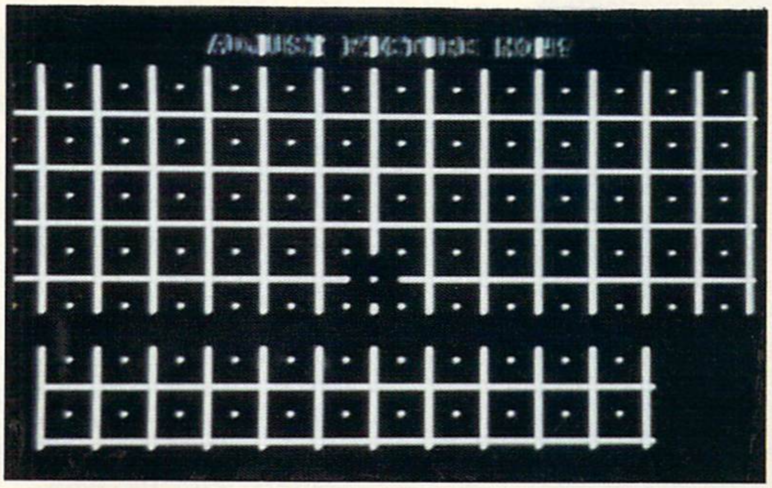


Genlocked in background mode, this cross hatched pattern is direct from video signal generator. Message, color bars, and gray scale are Amiga graphics.



Genlocked in foreground mode, this cross hatched pattern appears only where message, color bars, and gray scale reside.

the ribbon cable (with a 5-pin female DIN) on the ProGEN to the parallel port on your computer. You'll need a DB25 connector (male for the Amiga 500 or 2000; female for the 1000) and a small length of 4 conductor phone cable. Instructions for making this cable are well detailed in the ProGEN manual. Make the cable; it's worth it. With the proper software installed, this cable brings new control to your genlock.

Run either the ProGEN1 or ProGEN2 program from the supplied software disk. These programs provide genlock mode control through a series of hotkeys—the control key and either 1,2,3,4 for ProGEN2, or F1,F2,F3,F4 for ProGEN1. Since many programs use Ctrl-softkeys combinations, you'll probably prefer ProGEN2, which I'll use in these examples. I've added ProGEN2 to my startup sequence, so it's always ready. Using the 1,2,3 keys, you can select background mode, foreground mode, Video only, or Amiga only video. Each key acts like a switch and can be toggled on or off. (The resulting combinations are listed in Table 1). Key 3 switches between 2 foreground mode. Colors with RGB values of less than 7,7,7 are transparent in foreground mode 1 and solid in mode 2. Key 4 is a reset button which automatically sets the background mode (default), regardless of the current settings of the other switches.

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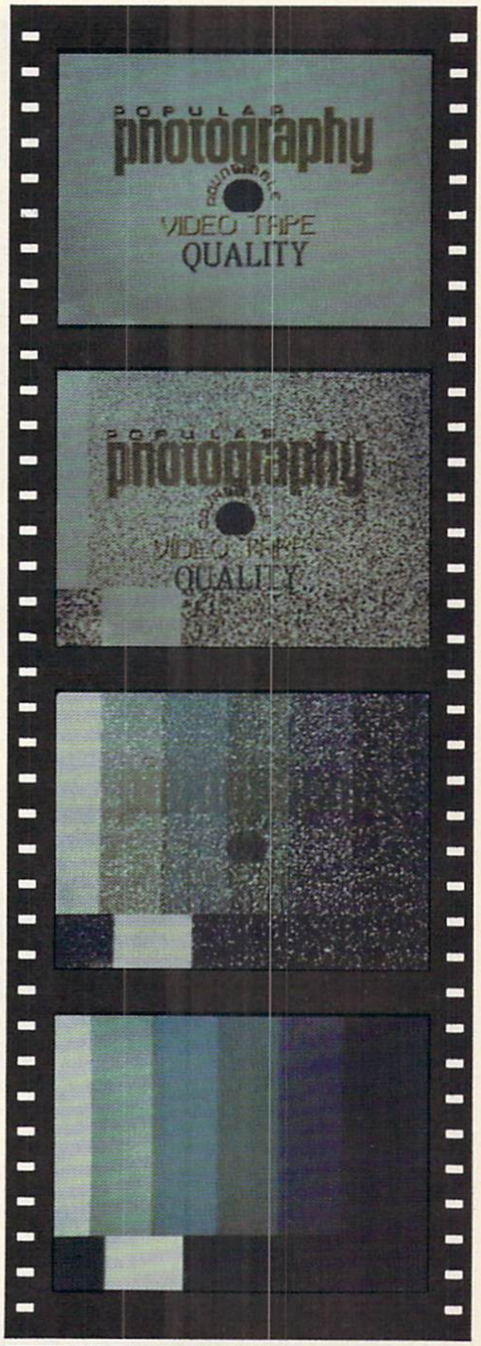


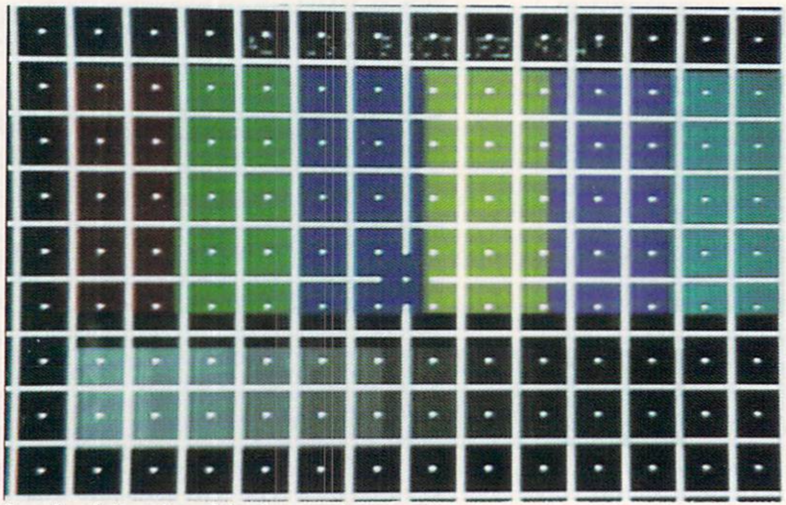
Go from graphics to live (or taped) action with genlock. Start your tape, then start your titles and watch the action. I've used a color bar pattern from a signal generator instead of live video action, so that this demo sequence will be clear.

Title frame for video fades to live action...

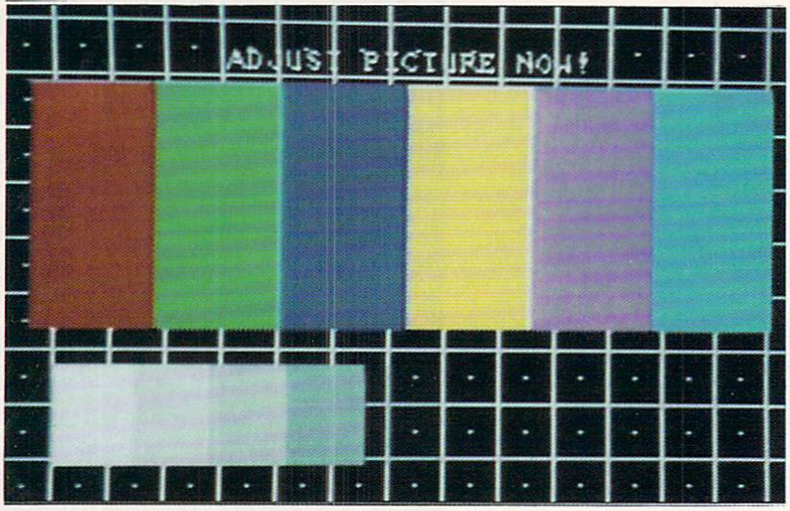
Dissolves to black...

And is finally replaced....

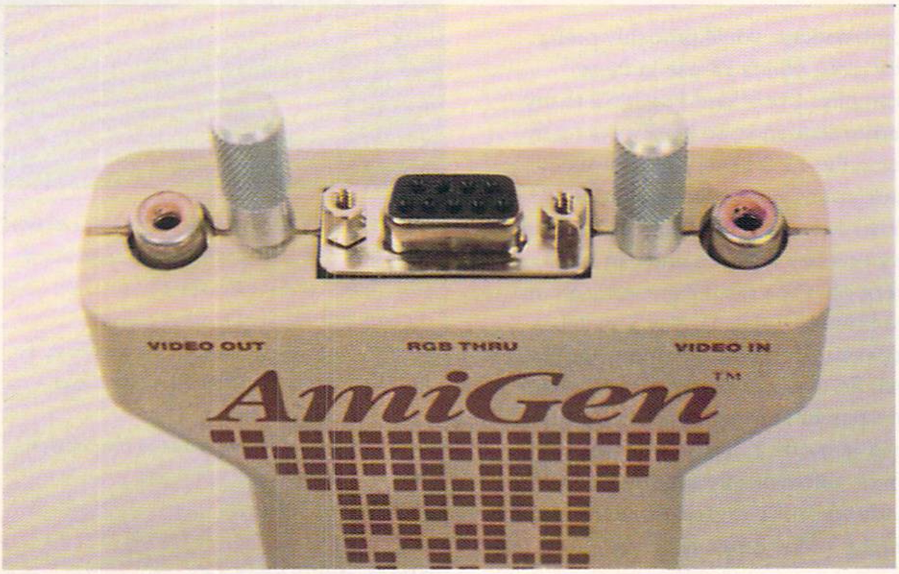
By External video.



***Standard dissolve**: Color bars and gray scale fade out evenly, creating double image as cross patterns peers through fading color patches.*



***Interpretive dissolve**: The gray scale disappears from black to white, depending on how you assign scale to color registers. Color bars are next.*



The back-end of AmiGen shows RCA video connections, and the 9-pin video passthrough.

Aside from the software mode selection, ProGEN has no other user settable controls. If you want to tweak the video image, the manual describes a complex step-by-step procedure which requires several expensive video instruments. Be careful, though. The manual warns that if you try this, and get the controls way out of adjustment, you must send the unit back to Progressive Peripherals for a $50 calibration.

ProGEN produces a high quality video image; the colors are highly saturated and the edges are well defined. The selection of modes is useful, and switching modes is easy and instantaneous with the accompanying software. The ribbon cable is too short and somewhat inconvenient. With the unit behind my A500, the cable dangles slightly since my computer sits above a Pacific Peripherals expansion chassis. Overall, this moderately priced genlock ($349.95) is an excellent choice for a small video production facility.

SuperGen: Deluxe Control

The next logical step in genlocking would be to add control to the amount of mix between foreground, background computer graphics, and external video. Add a few advanced features, such as a switchable notch filter, video passthrough, a second genlocked output for dual recording, and even a key out (for professionals only) and you've got SuperGen. This genlock, designed by Progressive Image Technology (which makes VideoCharlie, a somewhat similar device on a board for those other computers), is from Digital Creations (the same guys who brought you GIZMOZ).

The hardware, 9" x 6.25" x 1.25", fits nicely above my A500 keyboard. You'll probably want to keep it close at hand, as the two slide switches and two toggle switches can be used to create a variety of genlock video effects. The back of the SuperGen has 5 BNC connectors (you'll probably need those adapters again, although this genlock may find its way into a lot of professional systems), a 25-pin RGB connector with two pins removed for RGB passthrough, a 24 inch flat cable with a 23-pin RGB connector and 8 switch dip. The 25-pin RGB connector is similar to the 23-pin connector on the back of your Amiga. Accordingly, you can use your standard Amiga-to-monitor cable, but be careful not to offset the cable. Damage to the genlock or computer might result. Follow the instructions exactly!

For basic genlock operation, connect the external video source to the "video in" connector, and take the genlocked signal from Overlay 1. When the unit is genlocked, the red power light at the top left changes to green. If you want to monitor the external video, you can connect a monitor to "Video thru," but you'll need to move switch #1 up to remove the 75 ohm terminator for loopthrough operation. A second monitor or VCR can be connected to Overlay 2. Using Key Out requires sophisticated video equipment, and I won't go into its capabilities in this article.

The notch filter can remove some of the fringing from the video image, and the effect can be clearly seen on the video monitor. You'll probably want the filter on for text and detail, but there are still times that you'll prefer the image with the switch off. Interpretive dissolve changes how the graphics fade. We'll get to that after we discuss the two slide switches.

The left and right switches are labeled "Background" and "Graphics," respectively. With both switches in the "up" position, the Amiga graphics and Amiga background (color 0) are at full intensity, creating a signal similar to the one that comes from the RGB passthrough (although at somewhat lower quality due to the NTSC specifications for composite video). Pull

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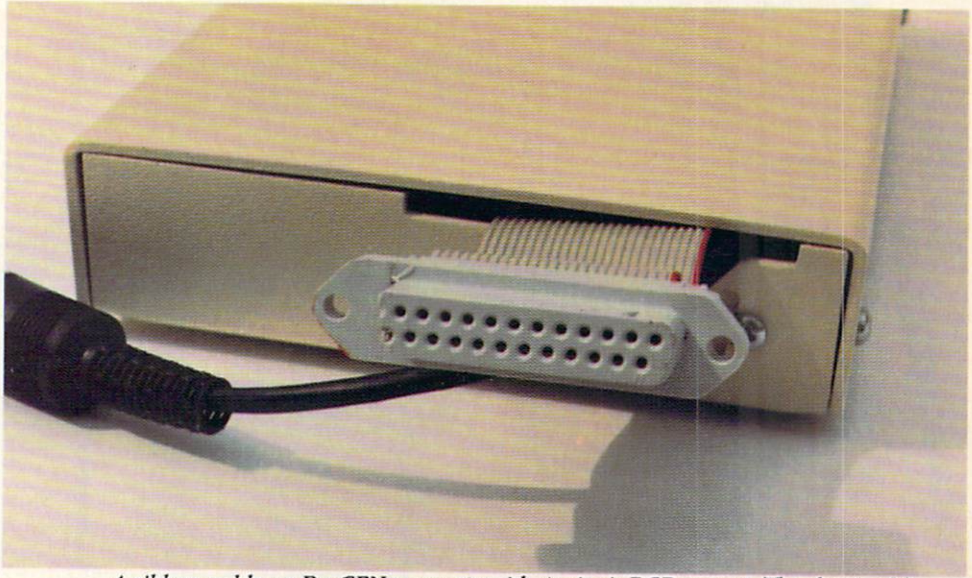


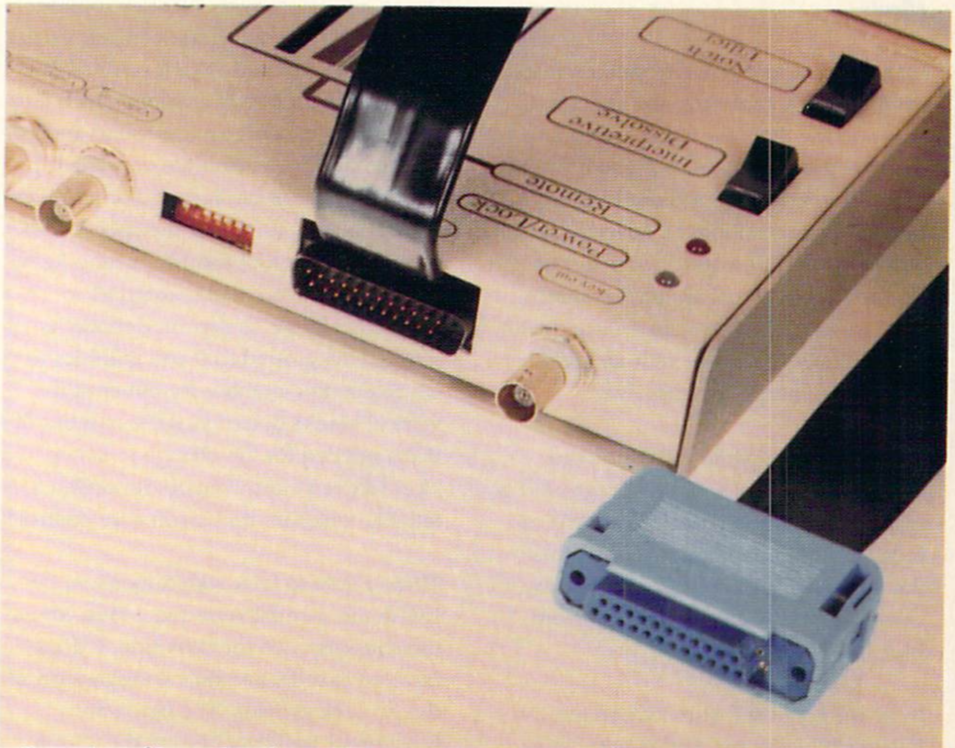
A ribbon cable on ProGEN connects with Amiga's RGB output. The short cable can be inconvenient. The 23-pin connector is really a truncated 25-pin part.

Table One

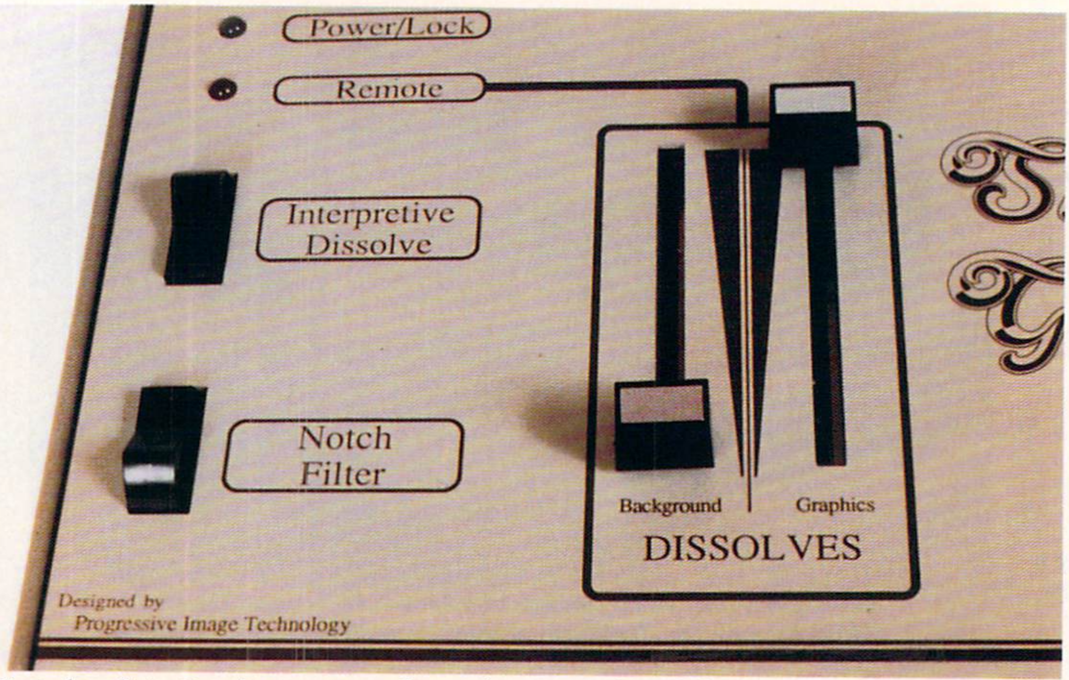
ProGEN Software Control Settings:

Mode:	Switch **1**	**2**	**3**
Background	1	1	1
Video Only	0	1	1
Amiga Only	1	0	1
Foreground 1	0	0	1
Foreground 2	0	0	0

Switch 4 is a reset switch and sets the ProGEN to background mode (1,1,1).



Rear view of SuperGen shows BNC connectors, dip switches, and RGB connectors. The RGB connector of SuperGen is a truncated 25-pin connector. The cable works fine, but you might expect better workmanship for $749.95



Controls on SuperGen give user manual control over versatile genlock effects.

the background slider down and color 0 is replaced by the external video, producing a background mode similar to the background of AmiGen and ProGEN. The difference here is that you can use the slider to remove only a portion of the background, producing some unique effects.

Let's go back to our Workbench screen example. We can move the slider halfway and the external video appears in the background, but it looks as if you are looking at it through a piece of blue plastic. By controlling the speed at which you pull the slide control, you can use the fade effect to enhance your videos. Similar effects can be accomplished with the graphics slider, but with an added twist—the interpretive dissolve.

Remember that while we define the background as color 0, the foreground is made up of all the other colors. We can fade all these colors out evenly, or use the interpretive dissolve to remove the colors in order of their registers, from high to low.

Now we get to software. SuperGen can be controlled by the Amiga without a separate control cable. Required library drivers are supplied which allow you to write or purchase software to control the genlock. A new version of Character Generator by JDK images (from PVS Publishing) will be one of the first to support SuperGen control. I can't wait to try it!

SuperGen comes with a Hokey routine which lets you control the genlock using the Amiga keyboard. When you activate the program, a matrix appears which lets you define values for background and graphic dissolves (absolute or relative), and a number of background or graphics vertical blanks (to adjust the speed of the change) for each of the 10 function keys. For example, you might assign F1 to automatically set background mode by setting background to 0 and graphics to 63. Selecting a number for either of the vertical blanks determines the number of fields needed for the change to occur. There's even a red light on SuperGen to tell you when it's under software control.

There's little to fault with SuperGen, but I wish the manual were more clear about the software. On the plus side, it does have an excellent technical description of the genlock process. The hardware functioned well, but I found the 23-pin female connector (ground-down from a 25-pin) a bit shabby for such an expensive device. (ProGEN has the same fault, but it is less expensive.)

SuperGen's image quality is excellent, but it's still at the mercy of the NTSC standard and may appear disappointing if you're accustomed to your RGB. Although I'd give SuperGen the nod over the others in image quality, the difference from ProGEN is very slight, and might not be worth the investment if you don't feel you'll need SuperGen's other features.

In Conclusion: A Few Notes

All three genlocks have a niche in the Amiga marketplace, and you won't be disappointed with any of these if you choose for budget, performance and features.

All three suffer from similar defects of which you should be aware. I found the jitter of RGB passthrough a bit excessive when I tried the three genlocks on my 1084 monitor. The situation was much better with my 1080, but with some programs, the image is not equal to the standard RGB connection.

When genlocking to external video, all three genlocks require a fairly clean, strong signal. If you start or stop the external video, a glitch occurs in the output which could be unacceptable in your final video. This can even effect the RGB passthrough! If your external source is a VCR, you may not be able to genlock to a freeze frame or other special effect.

On a positive note, devices like these take the incredible graphics machine we call the Amiga and make it a valuable part of a video production facility. And that's the reason it's starting to get a lot of attention from the major TV networks.

•AC•

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The "ANIM Man," Gary Bonham

An animated conversation with the man behind the format.

Interviewed by Brendan Larson

The Amiga family of computers continues to evolve and new developers enter the programming arena every day. Not too long ago a man named Gary Bonham needed low-cost and efficient animation. The answer was the Amiga and the ever popular "anim" format which Bonham himself created during his pioneering efforts. The "anim" format won enthusiastic support from Commodore-Amiga and is now supported by several Amiga software products. Gary's saga follows.

AC: How long have you been involved in computer science, and when did your journey with the Amiga begin?

Bonham: My involvement with computers began back in 1960 while attending UCLA, where I later received my degree in Astrophysics. At the time, computer science was not recognized as a valid subject for University level courses and there was not much to choose from. Quite a bit of the instruction was theoretical in nature, and I ended up working on an old IBM 7090, writing code in FORTRAN. FORTRAN's one of those funny computer languages that will probably be around in the year 2000! I believe that ADA offers some serious competition to FORTRAN due to government regulations that are being imposed. However, C is a dangerous language for overall scientific applications, due to the fact that C allows the programmer to allocate pointers and you can get into trouble easily when doing everyday work. Most scientists don't need a a low-level programming language such as C.

As for my introduction to the Amiga, that took place about three years ago in the Fall of 1985. The company I work for, SPARTA, needed an economical machine for video applications for their Strategic Defense Initiative (SDI) and Star Wars research. At the time, there were plans to use the IBM AT system, but in order to meet the required video standards a Targa board would have cost thousands. So, the Amiga quickly became an alternative despite its poor operating system.

AC: You're known in the Amiga community as the creator of the "anim" format. A while ago, you were responsible for compressing the famous "El Gato Cat" into an "anim" file, after it was given to you by Blair and Sullivan. Some have even referred to you as the "ANIM Man." How did this come to be?

Bonham: In doing the SDI videos for SPARTA we needed to simulate, through animation, satellite and missile tracking, and there were no good means of doing so on the Amiga. Aegis and Electronic Arts were using different formats for animation purposes, but neither was sufficient for what I wanted to do. Anyhow, most of the animations that were being done by those two firms only worked in lo-res. I tried using multiple IFF pictures, but it was too cumbersome.

All I wanted to do was save the changes from picture to picture. The idea was to XOR from each previous picture. To me, the sensible way to do this was to put together multiple ILBM forms inside the "anim" file. The result was a compression technique.

The folks at Blair and Sullivan gave me about 90 individual pictures of that cat after it had been digitized, buthered, and brought into DPaint's "Perspective" mode. It became one of the more popular "anims" early on.

AC: Can you be a bit more specific in describing the "anim" format?

Bonham: Certainly! The "anim" format is simply a collection of pictures. The first picture is a normal IFF image, like the ones you load into DPaint. The rest are the stored differences from each picture, two pictures back in the sequence to accomplish double buffering. If there is very little change from image to image then the "anim" file will be relatively small and will play back rather quickly. However, if the whole screen changes significantly, then watch out! Really, the "anim" form is great for animating small objects on the screen.

AC: What about the other handful of animation formats that have been developed? It appears as though the SPARTA IFF "anim" routines are gaining wide support from a fistful of third party developers. How do the others stack up against your format?

Bonham: I'm aware of a couple other animation-compression forms being used, such as Jim Kent's (author of Aegis Animator) and Eric Graham's (author of the "Juggler"). I don't know how the SPARTA "anim" form is versus the others. The virtue in the SPARTA "anim" format is that technical information about it is available in the Public Domain, so it's

(continued)

fast becoming a de facto standard that various products are supporting—this is the important part. That's one of the reasons why Commodore is openly supporting and publicly acknowledging it. I don't care if it is mine that's used, but we need something for a standard.

Everbody seems to jump on the bandwagon. There may be other parties that have developed animation formats that use a different compression algorithm. If that's the case, then it would be nice if information is released to the developer community about it so it can be supported by third parties. One nice thing about the SPARTA "anim" format is that it can adapt to future compression techniques. When it comes to animation compression techniques, certain criteria should be met. First to consider is how fast it takes the animation to compress, and then how long it takes to play back. Most people don't want to wait around all day! The SPARTA "anim" format compresses relatively quickly and plays back quickly.

AC: Your software supports different levels of overscan. You even have a mode called "Severe Overscan." What is this? DeluxePaint 2 hints at using overscan, but doesn't seem to adhere to the rules of broadcast video. Are you doing something different?

Bonbam: For most applications you really don't need overscan. That is, so long as you're rendering on color zero. If you don't need overscan, then don't use it. The processing power of the Amiga begins to dwindle when overscan is added. You do need overscan if you plan on covering the whole screen. With most applications you can get away with medium overscan unless you plan on covering the entire screen for genlock purposes. For instance, if you are using a genlock and are covering the screen with a totally blank color zero register with your background video image showing through completely, and then if you plan to wipe to a non-color zero image so that there is a transaction to no video being displayed at all, with some monitors you'll still be able to see video coming through, unless the screen is completely covered. That's why I devised the 768 x 480 "severe overscan" image so that all possible incoming video will be covered. I chose 768 because it is a multiple of 64, so transitions can be done by moving whole words of pixels, long or short. There's really no standard overscan screen, but DeluxePaint's methods did not agree.

It's important to support all resolutions. I don't want to limit people and their needs. In hi-res, if you drop from sixteen to eight colors, your animations will gain speed because of the corresponding gain in bandwith inside the Amiga. Cutting a bitplane more than doubles the speed in most cases.

AC: Recently, you just finished Aegis' Videotitler, which is your first major product on the market. How long did it take you to complete Videotitler, and what other Amiga projects are you currently working on?

Bonbam: The Videotitler project was somewhat unusual in that it took me over a year to complete. When we started, we didn't quite know what we were going to do with it. At first, it was going to be a super slideshow with "flying titles." Originally, the user interface was simply an ASCII script file, but we quickly found that the users wanted a graphic interface. It's easy to generate code for fancy graphics, but it's a whole different story when designing a user interface for dealing with those graphics. So, the focus gradually drifted to the production of titling Amiga graphics by eliminating the ASCII script as a user interface.

As time went by, fancy character styles were added into the overall project, as well as some other things like cutting and pasting. We really did not have a clear vision at the time, and that's one of the reasons why it took us a while to complete the project. Bundled with Videotitler is a slideshow type of program called VideoSeg that offers a variety of screen transitions. Titler version 1.1 is available, and there are plans for a 1.2 upgrade months downstream from now. Another program that's in the works for Aegis that may be out soon is "Lights, Camera, Action!", which is a player program based on VideoSeg that allows music scores to be synched with graphics.

I'm also working on a unique program in-house here at SPARTA that will operate under independent modules. This program will allow you to edit and control "anim" files. Features such as overlaying, painting, appending, and other valuable tools will be available to the user.

Aegis isn't the only company that I've done work for. I just completed some major software that is part of a professional television weather graphics turnkey workstation called "The Weather Connection," for a company called WeatherConnect. That system isn't a consumer product but you may see it being used by your local television station's weatherman!

AC: Quite interesting! If you work for SPARTA, how can you work for these other companies?

Bonbam: SPARTA is a company of about three- to four-hundred employees across the U.S., with a primary interest in ballistic missile defense. It came about that Aegis was shown examples of some of the video presentation software that I had done, and we branched off with products for Aegis and eventually WeatherConnect. SPARTA encourages diversification within the company. We once had what was called a "SPARTAFILM" which found its way into some of my programs such as earlier versions of Showanim (a public domain "anim" player).

AC: What other development tools do you use at SPARTA, and what would you like to see in future generation Amigas?

Bonbam: We have a Mac II at SPARTA. We're currently writing a version of VideoTitler for the Mac II. Unfortunately, not too many programs exist on the Mac II that take advantage of its graphics power, but it is a tremendous machine. I

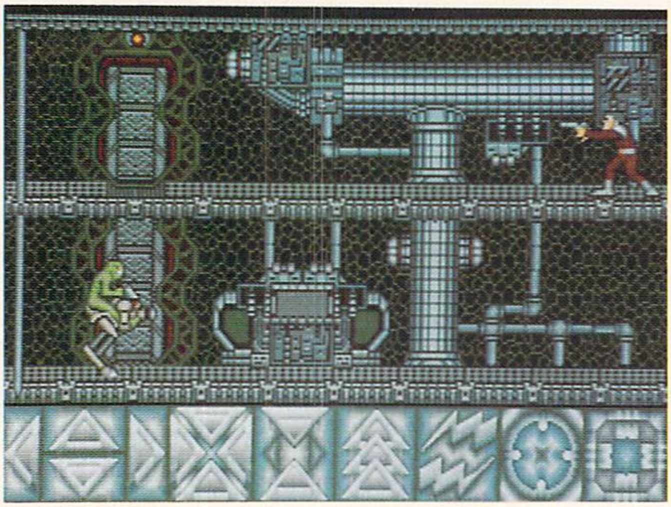
(continued on page 104)

Take Five!

By Steve Hull
GEnie: LightRaider
People Link: St. Ephen

Gaming News

Add Omnitrend to the list of Atari ST developers making major commitments to the Amiga. Omnitrend's epic, **Universe III: The Traveller's Return**, is currently slated for late third-quarter release. Universe I and II, currently available for other systems, are not planned for the Amiga. Omnitrend promises **Paladin**—an animated fantasy combat game—will be on the shelves by the time you read this. An additional Paladin "Quest" disk is due within the next two months, and a new **Breach** scenario disk by Christmas.

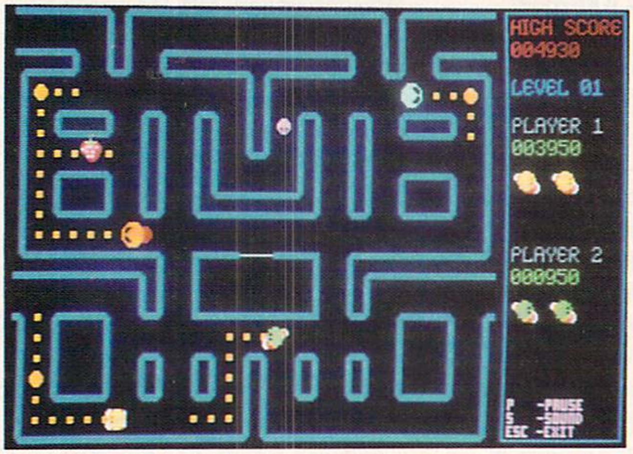


OBLITERATOR

Look for Electronic Arts to up the ante for professional-quality Amiga software; the company has taken several steps in the past few months to become leaner, meaner, and more competitive. One industry source claims games currently in the works at EA boast "the best 3D routines and raster graphics I've ever seen."

"Creeping featurism"—that irresistible urge to add new bells and whistles to a program—keeps pushing back the release date of Microillusions' third One To One title, **Turbo**. The designers keep visiting arcades and picking up new ideas. One person involved in the project enthusiastically reports that the game now has "three kinds of blood splats." Creativity is a wonderful thing, isn't it?

Latest word from Infocom is, their interactive **Infocomics** will not be translated to the Amiga. At least, that's this month's story.



FOOTMAN

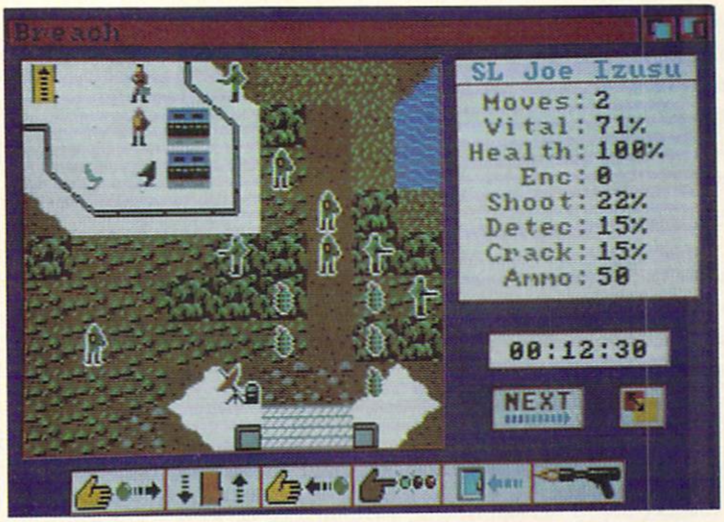
Discovery Software had to send their latest game, **Zoom**, back for some last minute "clean-up." The pre-release version's digitized audio "Got you!"—spoken in heavily-accented German—was confusing to young ears.

Oh, A Wise Guy! Nyuk Nyuk Nyuk

Flash! According to that paragon of checkout-stand journalism, *Weekly World News*, Libyan dictator Moammar Khadafy has developed an obsession for the Three Stooges! According to the News, Khadafy "sits in his tent day after day—sulking and staring at old Three Stooges movies." Well, there it is in print, so it must be true. One hardly dares wonder what kind of strange fantasies Moammar entertains as a result of such fare; knocking Reagan's and Thatcher's heads together, for example! Maybe we should take up a collection to buy Khadafy an Amiga 500 and a copy of Cinemaware's **Three Stooges**…or perhaps, **Libyans in Space**.

Gamer's BBS

Telegamers may want to check out The Smoker's Den, a multi-user BBS based near Kansas City, Missouri. Online games include **The City of Madned**, a game that Sysop Chester Godsy describes as "Hack with multiple players." Amazingly, the board is run off an Amiga 500 with two floppy drives, two megabytes of memory, and a custom-built 16-port serial interface! You can call The Smoker's Den at (913) 432-0213, 7E1, 300 or 1200 baud.

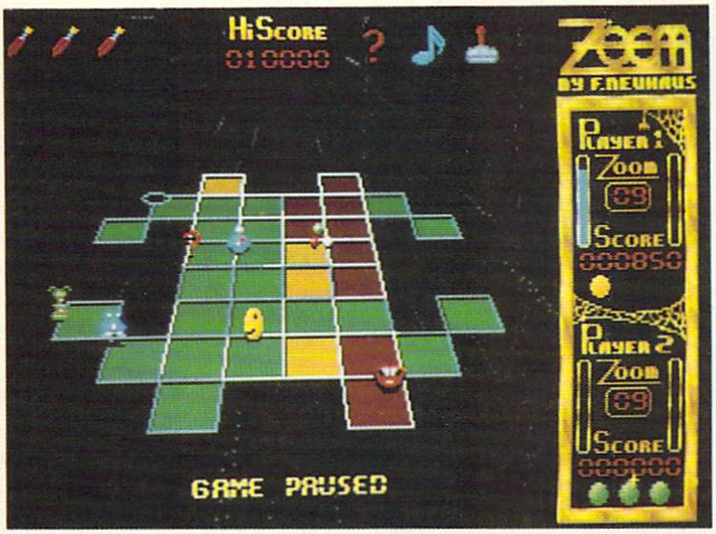


```
Breach
SL Joe Izusu
Moves: 2
Vital: 71%
Health: 100%
Enc: 0
Shoot: 22%
Detec: 15%
Crack: 15%
Ammo: 50
00:12:30
```

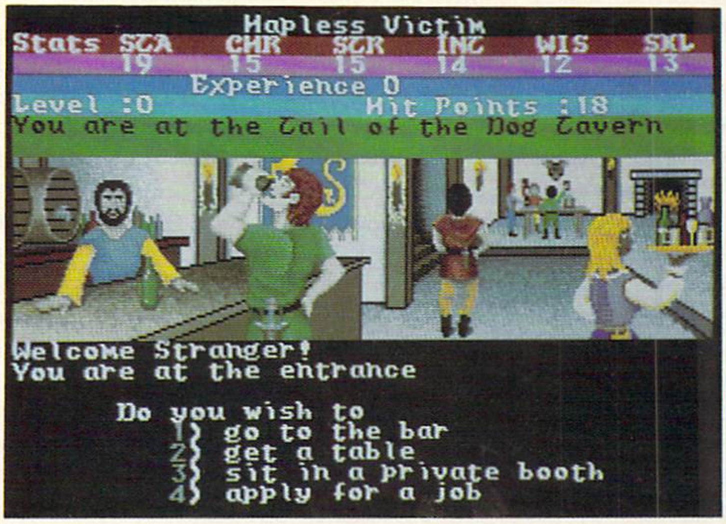
BREACH

Ferrari Formula One Cheat

Good news for frustrated **Ferrari Formula One** drivers! Mike Wasson of San Antonio has come up with a trick that guarantees racing victory, and is a good deal less conspicuous than cutting across the infield! Mike discovered that a little strategic editing of the ".ses" file on his duplicate (not master) Ferrari Formula One disk gave him more than the proverbial "racer's edge." Changing the fourth number following the team or country name directly affects the speed of the car! The numbers normally range between 490 - 500. Drastic changes don't make for terrific gameplay; a car set at 200 takes all day to complete a lap. On the other hand, at 600, your car will practically leap over the pack! You can chastise Mike (or see if he's found any new tricks) on the Starship Amiga BBS, (512) 558-9732.



ZOOM!



```
Hapless Victim
Stats STA  CHR  STR  INT  WIS  SKL
      19   15   15   14   12   13
Experience 0
Level :0          Hit Points :18
You are at the Tail of the Dog Cavern

Welcome Stranger!
You are at the entrance

   Do you wish to
    1) go to the bar
    2) get a table
    3) sit in a private booth
    4) apply for a job
```

ALTERNATE REALITY

The Reviews

This month we veer slightly from the course set in the last two columns—we have no "game of the month." This is not necessarily a statement against the quality of the games; it's just that none of the games reviewed this month really break the significant new ground needed to merit such recognition. All borrow heavily—one, exclusively—from previously released software. The results are mixed. Let's get to 'em!

OBLITERATOR

The date: Sometime in the unspecified future. A sinister alien warship looms over the defenseless Earth, which means...

Which means the veterans in the audience are already shouting "there's only one last hope!" in unison. Right you are. In **Obliterator**, Psygnosis' latest release, you play the part of Drak, a genetically-altered Berserker, who gets the honor of beaming aboard the ominous craft. Once there, you must disable the ship's engines, take down its shields, and steal the datapack which contains the secrets of its incredible technology. If you have any spare time after that, it'd be nice to escape before Federation strike craft blow the galactic sitting duck right into the next time zone.

At first glance, Obliterator bears an uncomfortably close resemblance to Psygnosis' earlier game, **Barbarian**. As the game opens, Drak appears, waving his weapon and looking around, much like Barbarian's Hegor—very much. And like Barbarian, Drak's actions are controlled using a row of action gadgets along the bottom of the screen. He can run, jump, attack, defend, and wield several different weapons based on which gadget is clicked. The first few times you play, you may wonder what would possess Psygnosis to repackage an old idea.

First impressions are deceptive. Though the two games share similarities in graphic style and user interface, Obliterator requires a different set of skills than did its predecessor.

Getting through Obliterator is no picnic. To complete the game, you must locate and remove five components needed to disable the alien craft and allow you to escape. A horde of worldly nasties stand (or float, or pulsate) in your way; among these are killer robots, malevolent energy clouds, and skittering, crab-like parasites. If these aren't enough to worry about, the ship itself is boobytrapped, and blasters appear from behind concealed panels at the least opportune times.

So far, nothing really new, but Obliterator adds one more challenge that sets it apart from its primordial sibling. Unlike Barbarian, a basic linear obstacle course between Point A and Point B, Obliterator requires that you weave throughout the various compartments of the leviathan ship, itself a massive three-dimensional maze! Don't even think of getting through without making a map as you go!

This, plus other welcome features, makes Obliterator a more playable game in the long run. Since the run can get long, there are several stations scattered throughout the ship where you can stop and save a game in progress. You may pick up where you left off at a later time.

According to Psygnosis, Obliterator runs on Amigas configured with either the stock 68000 processor or the faster 68010 or 68020 chips. I was not able to test this, but I would like to; one gets the feeling that Obliterator needs just a little more oomph than the standard 68000 puts out. Between the European technopop soundtrack and multiple simultaneous screen events, action tends to bog down. Most of the time this isn't a problem, but other times it can be critical. "Command lag" can be deadly in the heat of combat, when your frantic clicks on command buttons appear to have no effect.

Obliterator's graphics are rich and claustrophobic, but sound effects are neither as distinctive, varied, nor convincing as those of Barbarian. How many ways can you say "bzzzz," anyway?

Obliterator, like other Psygnosis titles, is an advanced game, and gives you a lot to learn. The map of my game-in-progress spans over 75 rooms and I'm nowhere near completion. Once again, Psygnosis proves they can dish out more bang for the buck —if you're hungry for a challenge, this one's for you.

FOOTMAN

Footman, one of Topdown Development's first "Quarter Savers" games, has the look of a classic—which is no coincidence. Footman is without question the finest and most faithful Pac Man contest created for the Amiga to date.

Footman—named for its red-sneakered maze runner—follows the Pac Man theme so closely that its documentation does not even really explain gameplay. There's no need. You must have lived in a cave for the past eight years not to have been exposed to the dot-gobbling maze game that did more than any other title to cause the videogame boom of the early 80's.

Footman opens with three options: New Taste, Classic, and Maze Editor. New Taste and Classic differ only in the shapes of the players. New Taste pits Footman against four round, pulsating pursuers, while Classic offers the standard yellow muncher and ghosts. The Maze Editor allows you to build new mazes or edit existing ones. You can use a joystick or the cursor arrow keys. Gameplay is enhanced by silky smooth animation and fine stereo sound. The disk includes 50 levels, and you may begin a game at any level. The top 80 scores are saved to disk.

Though Footman may appear identical to Pac Man at first glance, seasoned arcade gamers will pick up on subtle differences. In Pac Man, the four pursuing ghosts have distinct personalities. Speedy, for example, is faster and more aggressive than Inky, Pinky, and Clyde. Footman's ghosts appear to differ from each other only by color. In Footman, the on-screen player moves at the same speed whether he's eating dots or not; in Pac Man, a player can surge ahead of a pursuer by ducking down a dotless path. Finally, unlike Pac Man's haunters, Footman's ghosts do not slow down as they pass through the tunnels at the edges of the screen.

Unlike its coin-op cousin, Footman allows players to compete simultaneously in the two-player mode! This setup is a lot more fun than taking turns, since it presents strategy and teamwork not possible in the original game.

As nice a game as Footman is, I don't know if I could recommend it at $29.95... *if* there were nothing else to it. Pac Man-type games for the Amiga are in generous supply in the public domain. However, Footman offers a full-featured maze editor that makes the cost worthwhile to the dedicated pac-a-holic.

Using the maze editor—sort of a Footman Construction Set—you can edit mazes included on the disk or add up to fifteen completely new levels. You can save new mazes to the game disk for future play and restore the original fifty mazes at any time.

Besides supplying tools for placing maze sections, dots, ghosts, and powerpills, the maze editor adds some nice convenience features. You can define a section of a maze as a brush which can be flipped horizontally or vertically and stamped down anywhere on the grid.

Topdown isn't going to win any awards for originality with Footman, but you have to give 'em credit for exploring an old theme with gusto and imagination.

ZOOM!

Can lightning strike twice? Discovery Software hopes so. The Maryland-based disk-copier-cum-game-marketer scored a huge success earlier this year with the Amiga translation of Arkanoid. Their latest release, **ZOOM!**, is a flashy arcade import from Germany with lots of joystick-wringing action.

ZOOM! takes place on a flat grid that hangs suspended in space as stars rush by in the background. Your figure—a spherical yellow pac-a-like—roves the lines of the grid, marking as it goes. If you are able to mark off all four sides of a square, it changes color and you gain points. The object is to claim the entire grid, boxing off a section at a time.

Your opponents are the various critters prowling the grid. These range from an overgrown molecule to an aggressive set of big lips that would do Mick Jagger proud. If that isn't enough to fuel your paranoid fantasies, there are little green chesspieces-from-Mars that erase the lines as fast as you draw 'em! Collisions with any of these baddies sends you hyperwarping off into video oblivion. And what space game would be complete without black holes? These suckers have a nasty habit of disappearing, then reappearing without warning directly in front of you—just goes to prove that in space, no one can hear you scream "UNFAIR!"

Other random surprises can pop up in your favor. Running across certain objects can freeze the nasties in their tracks, award you extra points, or warp you to the next level. You can play against the computer or another player in either alternating or simultaneous competition.

Completing a grid warps you to the next of the 50 levels. If you can make it past 15, you have my hearty congratulations (actually, get past about 8 and you've earned my admiration). The top 10 scores are saved to disk.

Veteran videogamers will recognize the basic premise of ZOOM! as a high-tech update of the 8-bit classic, **Kid Grid**. Kid Grid, you'll remember, was a deviously addictive game that no kid ever got to play after Daddy took a turn at the joystick. ZOOM!, while not completely original, is nonetheless a worthy successor. For fine arcade action, ZOOM! is highly recommended.

ALTERNATE REALITY

My first encounter with Datasoft's **Alternate Reality** was memorable. I had just returned from overseas and was catching up on the latest Atari 8-bit software titles in a Washington, D.C. computer store. Zork was available, along with some pretty decent arcade titles, but the salesman waved me to a system set up in a far corner of the store. "Take a look at this," he said, slipping a disk into the drive.

I couldn't believe my eyes. Alternate Reality squeezed more graphics, color and music out of the old Atari than I thought the machine had in it! More than that, however, was its depth. The first module, titled **The City**, really was a city, with streets and shops and an active population of good and bad folk.

The Amiga version—marketed by Electronic Arts under their Affiliated Labels program—is many times the game that originally appeared on the smaller systems. This is good, but it may not be enough.

Alternate Reality is a fantasy role playing game. You begin the game standing at a portal; at the top of the portal is a row of six constantly changing numbers. As you advance through the portal, the numbers freeze. These are now your character's attributes, corresponding to stamina, charm, strength, intelligence, wisdom, and skill. The screen dissolves, and, in a moment, you find yourself standing near the Floating Gate in The City of Xebec's Demise.

What to do next? For starters, you can explore. Among The City's attractions are 15 Shops, 7 Inns, 3 Banks, 4 Smithies, 2 Healers, and 12 Guilds. You can bargain for goods, apply for a job, open a bank account, or rent a room for the night.

Alternate Reality takes place in real time, accelerated to approximately four minutes per hour. Before long, the sky darkens as the sun slowly disappears behind distant mountains. You quickly find that The City, inhospitable enough during the day, becomes downright dangerous at night. Supernatural creatures join the ranks of muggers and assassins, making a night at the Inn a tempting option indeed. And if the boogeymen don't get you, the environment might—cold and rain affect your statistics, especially if you are not dressed appropriately.

If Alternate Reality sounds fascinating, that's because it is—but only to a point. Inexplicably, the Amiga version retains many of the limitations of the smaller machine versions. For example, though the documentation claims 14 different taverns in the city, the interior graphics in each are identical. All the banks look alike, as do the inns, shops, etc.

Most of the game time is spent peering at a view of The City that measures about four inches by two and a half inches on a standard Amiga monitor. Animation and sound effects are sparse and rudimentary. In the game's defense, however, the music is very good throughout.

Interaction with the local citizens is frustratingly two-dimensional. No matter who you encounter, be it a Commoner, a Merchant, or a Giant Rat, you are limited to the same six options: attack, charm, trick, offer an item, lunge, or leave. There's no way to offer even a hearty, "what ho!"

If you're wondering why I haven't mentioned the object of the game, it's because, strictly speaking, there isn't one. Your charter is to map The City and develop your character's attributes for future contests. The original creator of Alternate Reality did not intend The City to be a place where extended play took place; it was to be a resting point from the Dungeon or the Arena. The City has portals to these and several other modules, each requiring disks which have not yet been developed! In the meantime, you wander.

Alternate Reality knocked a lot of socks off when it came out in the early 80's, but much has happened since then. Today, it pales next to such classic contests as The **Bard's Tale**, **Faery Tale Adventure**, and even poor, misunderstood **Alien Fires**. The fact that it has endured and prospered this long is a testament to its appeal to many fantasy gamers, but I must confess it left me looking for... an alternative.

BREACH

Squad Leader Izusu curled his finger around the ring of his last energy grenade and peered through the thick cover of underbrush. The ground shook from the force of the massive battle robots that patrolled the perimeter of the enemy compound, and the pungent odor filtering through Izusu's respirator betrayed the presence of large indigenous omnivores uncomfortably close. His scout, a green kid named Todoroki, was showing the strain. "We'll never make it out of here alive," Todoroki breathed...

I made myself a promise when I began writing that I would never fall into the trap of starting out a review with a fictionalized narrative of a game. Looks like I just broke my own promise—so sue me! Omnitrend's tactical combat game, **Breach**, has got me all fired up.

Breach allows you to lead a squad of up to twenty Marines through nine of the nastiest scenarios ever dreamed up by military strategists. You begin a scenario by reviewing the mission briefing; this briefing describes your mission, the kind of enemies you are likely to encounter, and the specific criteria that must be met to achieve success. You may have a set percentage of enemy to kill, datapacks to retrieve, prisoners to rescue—or all three.

Gameplay takes place in alternating phases: the Player phase and the Enemy phase. Each member of your squad is allowed a limited number of movement points per phase. You expend these points by moving, but also by taking or using an object or firing your gun. Beginning with the Squad Leader, you cycle through the entire squad, staging movements or attacks until you have expended all movement points. The game then shifts to Enemy phase and the computer's counter-attack!

There's nothing new about this type of game, but Breach handles the tactical combat theme especially well. Graphics are largely symbolic, but finely detailed with much color and variety. There are four Marine classes: marauder, infiltrator, scout, and psionic talent. The enemy includes all these, plus aliens, beasts, overlords, and a couple of lethal mechanical surprises. A scenario may cover up to five levels, each level many times the size of the screen. Your squad can begin a mission battling beasts in a swamp and end by freeing POW's hidden deep within a futuristic underground compound.

One feature sets Breach apart: a fully-featured Scenario Builder. With the Scenario Builder, you may choose from a toolkit of over 200 parts to create new scenarios every bit as detailed as those on the disk. You can also load existing scenarios and edit them. Homegrown Breach scenarios are now popping up on local bulletin board systems, and some of them are quite impressive. In addition, Omnitrend has released an additional "scenario disk" —The Serayachi Campaign—and more are disks planned.

This short look barely scratches the surface. Breach is addictive, involving, and often thought-provoking. You will come away from it with a new appreciation for the skills combat leaders need. If you enjoy war gaming, you owe it to yourself to check this one out.

"Put a lid on it," Izusu hissed, pulling the scout close enough to see Todoroki's sweaty face glistening behind his helmet display. "When you've been in as long as I have, you get used to this. Why, I've taken down those battle robots with my bare hands while ferrying a dozen hysterical POW's." Todoroki's features relaxed. "You really think we'll make it?" the scout asked. Squad Leader Joe Izusu grinned. "Make it?" he said, "You have my word on it."

STU

Finally, a Diagnostic for your system. A fast, powerful tool able to help you isolate system & media problems. STU runs on any Amiga. Available now for $29.95 + $3.00 shipping - NJ residents add 6%. Send a SASE for our PD list.

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PO Box 254
Moorestown, NJ 08057

Games Reviewed

Obliterator
Psygnosis Ltd Marketed in the U.S. by Computer Software Services, 2150 Executive Drive, Addison, IL 60601
(800) 669-4912
Suggested retail $49.95

FOOTMAN
Topdown Development, 2055 Peel Street, Suite 1055, Montreal, Quebec, Canada H3A 1V4, (514) 499-8464
Suggested retail $29.95
1 or 2 players

ZOOM!
Discovery Software, 163 Conduit Street, Annapolis, MD 21401, (301) 268-9877
Suggested retail $29.95

Alternate Reality
Datasoft Marketed by Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404, (415) 571-7171
Suggested retail $39.95

Breach
Omnitrend Software, P.O. Box 733, West Simsbury, CT 06092, (203) 658-6917
Suggested retail $39.95

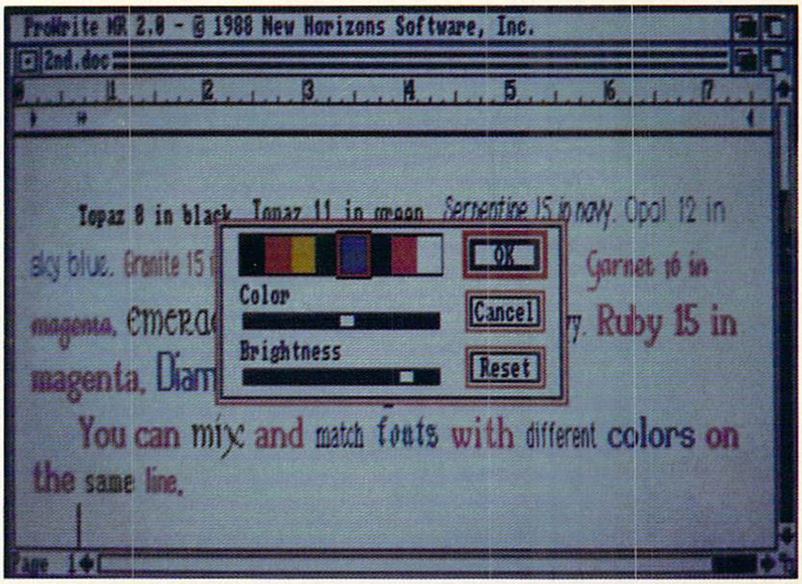
•AC•

ProWrite 2.0 *...a wizard of a WYSIWYG*

by Pamela Rothman
Co-Sysop, A.M.U.G. BBS 516-234-6046

I discovered word processing five years ago and I will never be the same. Since then, I have written one and a half novels, a few short stories and articles, a training manual for a collection company, and countless letters with word processors on the Amiga, C64, PET, IBM, Wang, DEC, TRS-80 and AlphaMicro computers.

When they were good they were only pretty good, and when they were bad they were rotten. Time after time I approached a new program and found outmoded block-style cut and paste or endless layers of editing menus. Some required multiple keystrokes to perform simple editing tasks that are called for over and over again. I thought the situation was simply ridiculous, since the most important thing about a word processor lies in how easily it allows you to rewrite what you have already written.



Topaz 8 in black. Topaz 11 in green. Serpentine 15 in navy. Opal 12 in
sky blue. Granite 15 Garnet 16 in
magenta. Emerald y. Ruby 15 in
magenta. Diam
You can mix and match fonts with different colors on the same line.

Even macros are not the answer. There are thousands of different editing tasks, and shortcutting a bad system does not make it a good system. Even the Amiga, as intuitively creative as it is, has been crippled by word processors that don't utilize its resources. The integration of the mouse for cursor placement and pulldown menus should have heralded a new age for text editing functions. The Amiga makes possible a variety of options and the flexibility of use needed to make writing more natural.

All things come to she who waits. ProWrite 2.0 has the best editing functions of any word processor I have ever used.

First of all, the cursor is a blinking line, easier to put between letters, and the screen pointer is shaped like an I-beam for the same reason. The I-beam disappears when any key is pressed, and does not reappear until you move the mouse. The screen pointer is never in your way, no matter where you are writing.

I type 55 wpm, and even at the beginning of ten-page documents, ProWrite 2.0 keeps up with me while inserting text. It's always in insert mode, but you can type over text by highlighting it in reverse video first. It's simple to highlight. Hold down the left mouse button and drag the reverse video, highlighting all of the text you would like to change. Everything you type will replace the highlighted text.

Using combinations of the CTRL key and the ALT, SHIFT, and cursor keypad allows you to highlight as well. Using SHIFT left/right on the cursor keypad highlights words and SHIFT cursor up/down highlights screens of text. Using ALT and the cursor keypad highlights to the beginning or end of a line or to the top or bottom of the document.

ProWrite 2.0 gives you two methods of highlighting. That's twice as many as most word processors. Other word processors will let you edit by word or by character, but not both. ProWrite 2.0

encourages highly efficient word processing by letting you easily replace prefixes or suffixes in your editing. For example, in the sentence above, I initially wrote the phrase "suffixes or prefixes." I decided it would make more sense to put the word "prefixes" first, so I highlighted the first three letters of "suffixes" and typed "pre" instead. I did the same with the word "prefixes" to convert it into "suffixes."

Think of how you would handle this situation with the word processor you are using now. Would you copy or cut the word "prefixes" and move it in front of "suffixes," and then do the same thing again to move the word "or," and then how much adjusting would take place to get the spacing right? Chances are, the ProWrite 2.0 solution is still the simplest.

If you wanted to cut the phrase "suffixes or prefixes" and start from scratch, counting on your typing speed to save time, ProWrite 2.0 would still be faster since making the correction would require typing only six letters instead of the twenty-one required to repeat the whole phrase.

ProWrite 2.0 rewards you for thinking like a writer. Converting tenses and changing placement of sentences is so intuitive that it's no sooner thought than done. When you want to replace a word, a simple mouse click highlights it, letting you type a new word in its place. ProWrite 2.0 skips a step used in most word processors, which make you cut a word before you can replace it.

ProWrite 2.0 also gives you one of the handiest commands I have ever seen. You can highlight any amount of text, cut or copy it, then highlight any other amount of text and replace it with the text you highlighted first. I call this "paste with replace."

You can highlight a whole paragraph and paste a new word in its place, or do the reverse, highlighting a word and pasting a paragraph in its place. You can chop off the excess words from a sentence with a single keystroke. Just highlight the rest of the sentence and press "." Situations where this editing ease can be used are too numerous to list here. ProWrite 2.0 works the way you think—"that shouldn't be here, this should."

Moving around in the document is just as easy and intuitive as are the editing functions described above. If you don't press the CTRL key you will just move; if you do press the CTRL key you will move and highlight. Unlike a certain MS-DOS word processor that claims to have keyboard shortcuts, ProWrite 2.0's keyboard shortcuts are the short way to accomplish a task, not keyboard entries that give you a menu which in turn requires you to make another keyboard entry. Every one of ProWrite 2.0's movement and editing functions has a keyboard shortcut.

All of ProWrite 2.0's requesters have a gadget with the most frequently used option highlighted, allowing you to choose it with a RETURN. The cancel requester button is duplicated in the ESCAPE key.

ProWrite 2.0 is fast. I get where I want to go instantly, which is how it should be. After all, the Amiga is a professional machine, and professionals don't have time to wait while the screen updates.

Some of ProWrite 2.0's editing ideas are like those of text editors, the kind that edit pure, no-frills text for programmers. The best text editors are simple and fast, like ProWrite 2.0, but their printing choices are limited. Which brings me to the joys of WYSIWYG word processing.

WYSIWYG (pronounced wizzy wig) stands for What You See Is What You Get. It refers to word processors that show you onscreen exactly what the printed document will look like. Once you set your margins, automatic indent, line spacing, colors and fonts, ProWrite 2.0 will print exactly what you see.

If you are most interested in printing on a true letter quality printer like I am, you will find that ProWrite 2.0 can handle that too. To print in letter quality mode, it is necessary to change the font of the document to Topaz 11 for best results.

ProWrite 2.0 also lets you use pictures in your documents, letting you move them by cutting and pasting them just like paragraphs. An improvements in this version is the ability to resize pictures.

ProWrite 2.0 thinks in paragraphs, allowing different formatting, fonts, and colors for each one. Paragraphs end with a return marker, visible or invisible as you choose. You can manipulate margins by highlighting a paragraph and moving the rules at the top of the screen. The paragraph is automatically reformatted. The margins can be used to simulate text flow on one side of a picture by setting the left or right margin to meet the picture along its irregular edge.

There are two versions of ProWrite 2.0 in the package, a high-res version and a med-res version. The med-res version shows about one-fifth of the page at a time. The high-res version shows about half a page of text and shows picture proportions slightly better. It does flicker, however, because it uses interlace, so to use it on a monitor that is not made for such a display would require readjusting the program's colors or a polarized filter for long term use. The distribution disk has a ProWrite Preferences file on it called Dim Colors that changes screen colors to keep the flicker to a minimum.

You can save your own set of ProWrite screen environment Preferences using the Save Prefs menu option. To select an alternate set of ProWrite Preferences, click on the icon for the ProWrite Preferences file you need.

One of my few complaints about ProWrite 2.0 is its insistence on saving everything with .info files. Those who use Workbench are happy, but those who use CLI will see all those .info files cluttering up directories. I use a short batch file to clear my workspace in VD0: of the .info files and back up to disk.

```
delete VD0:DirName/#?.info
xcopy -u VD0:DirName DF0:
```

Note: Xcopy is a PD utility that copies files and preserves the date and time of creation. The -u switch causes it to copy only those files that have changed.

Documents load in with or without their icons, so ProWrite 2.0 is not dependent on them. There is an easy way to load documents created with other word processors. You can get a file conversion program from New Horizons that converts other word processors' files into ProWrite 2.0's format, with the original formatting and text enhancement intact.

Each document loads and saves with its own environment, allowing you to switch back and forth between environments automatically as needed. There's even an option to select the entire document for sweeping font or formatchanges. This is especially handy because of ProWrite 2.0's ability to print in either graphics or letter quality mode.

You should use graphics printing if you want different fonts or pictures in your documents. The pictures looked the same on the screen as on my black and white dot matrix Star SG-10. ProWrite 2.0 comes with the new, improved Amiga-DOS 1.3 printer drivers and Preferences. New Horizons is also shipping Commodore printer drivers for Canon PJ1080A, Toshiba and NEC Pinwriters.

Headers and footers are easily edited on a separate screen, automatically merging with your document. Headers, footers, and page numbering can appear in the appropriate places in your document and are visible onscreen. Pictures can be copied into a particular page's header or footer, but they do not follow the header or footer to the other pages.

The printing requesters show the currently selected printer driver, an important feature when the two printing modes are so radically different. ProWrite also avoids the often obnoxious results of sending graphics output to a letter quality printer. The program is "smart" enough to send graphics only to a graphics-capable printer.

The ProWrite 2.0 manual is in a plastic spiral binder that lies flat in front of you and doesn't jam the pages as you turn them. ProWrite 2.0 is so easy to use that I suspect many people will want to skip reading the manual entirely. Resist this impulse and read the manual cover-to-cover. It is helpful without being repetitious, and arranged so it is easy to look up that intriguing command or new option you read about the first time through. The manual is full of special hints, and reading it is the only way to appreciate all the capabilities of ProWrite 2.0. New Horizons technical support is excellent, and well worth the price of a Texas phone call.

There is a hefty 95,000 word dictionary in compressed form which offers suggestions for your misspelled words. The spellchecking function is self-explanatory, but only from the manual can you discover how to speed up the function six times by copying the dictionary to RAM: and letting the program find it there. The speed

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increases as you check, since ProWrite 2.0 remembers the last 1000 words and moves through them more quickly. From RAM: spellchecking moves at a easy pace. I would suspect the same would be true if the dictionary were on a DMA hard drive. You have complete control over an additional User dictionary. You can edit it, using ProWrite, as if it were a regular document.

ProWrite 2.0 has a Sort function, which can be used for sorting the User dictionary or any list you create within your document. The Sort function works in both alphabetical and reverse alphabetical order. This ability to edit a personal dictionary is an important contribution to its efficiency. It enables you to put in special words for special projects and delete them later.

ProWrite 2.0 also safeguards your precious data. Each document loads into its own window, which will check for changes when closed and offer the option of saving before you quit. Another document can't be loaded into the same window and wipe out the previous contents, and when you quit the program with multiple windows open it asks you about each one before exiting. If the document was loaded as text you will always be given the option to save it as text, thereby preventing you from embedding control characters in a file when they are not needed.

If you are trying to save a document which normally needs a requester and there isn't enough memory to bring it up, ProWrite 2.0 will automatically save the document under the name ProWrite. Recover on the disk in the internal drive.

Another nice feature is Revert, which replaces current text with the last saved version. I didn't see the point of this one until a cat ran over my keyboard and scattered editorial suggestions all over my document. I didn't have to open up a requester and load the document into a new window; I just used Revert.

ProWrite 2.0 is a perfect companion to the idea processor Flow 2.0 (reviewed in AC V3.3). It shares many of the same operating commands, including all the editing refinements. Flow's outlines can be loaded into ProWrite 2.0 and vice versa, with no loss of enhancements. A project can go from an idea to a finished project without unnecessary typing.

For a $124.95 list price you get a WYSIWYG word processor with the ability to print both letter quality text and graphic printing with pictures, and a self-contained Mail Merge option for form letters. You also get the best text editing I've ever seen. ProWrite 2.0 is a word processor I enjoy using so much that I can't imagine writing without it.

Ed Note: New Horizons plans to release a product called ProScript to convert ProWrite files to PostScript files. ProScript is due to market in September and will retail for $49.95.

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The Amiga at Spring COMDEX in Atlanta

by Ed Bercovitz

The Spring 1988 Comdex was held May 9-12 in the Atlanta World Congress Center and Apparel Mart. Attendance at Comdex is no longer *de rigueur*, and such major names as Lotus, Apple, Ashton-Tate were notable by their absence. However, other major industry players did show, including IBM, Microsoft, AT&T, Compaq, Tandy, and of course, Commodore. Interestingly enough, the show's promotional literature showed only one picture of the floor of last year's Spring Comdex. In that picture, the only visible product names were Commodore and Amiga on more than a dozen signs.

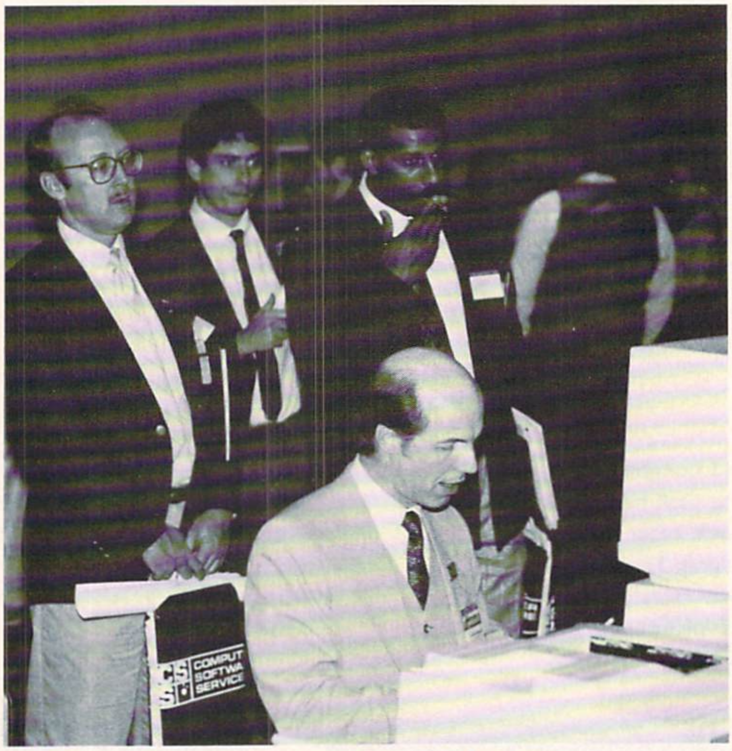
With more than 850 exhibitors and 60,000 attendees, the main factors of success at Comdex are visibility and exposure. So much happens in so many places during the four days that, without a high profile booth and a good location, a company can be overlooked. The two main battlegrounds, both larger than football fields, are the East and West Conference Halls in the Congress Center. The Commodore booth, located near the center of the East Hall, was one of the largest. A large "Commodore" sign, suspended above the booth, made it easy to find from almost anywhere on the floor. The central location also attracted the attention of passersby.

The Gallery

As in previous shows, Commodore relied on the presence and products of third-party developers to show off the Amiga's power. Twenty-five developers were strategically located around "islands" populated mostly by Amiga 2000's. In line with the strong business orientation of Comdex, the chosen developers and their applications were targeted at traditional business requirements for databases, word processors, and spreadsheets. More specialized needs, like desktop publishing and music and video presentation, also received attention.

Commodore imposed a requirement that all products shown in the booth had to be either currently available or scheduled for release within thirty days. The intent was

(continued)



Ed Lippert demonstrates LazerXpress, C Ltd.'s new desktop publishing/laser printing package.

obvious: avoid the "planned for release in 6/12/18 months" syndrome prevalent at such shows. Consequently, the only new product shown in the Commodore booth was WordPerfect Library, scheduled to ship the week after the show. The WP Library was further delayed by efforts to eradicate some newly discovered bugs.

Not all action at Comdex takes place on the show floor, though. Exhibitors conduct presentations, press conferences, receptions, and parties at various hotels around the city. Commodore was no exception, with a well-orchestrated, one-day series of events. Coincident with the official Comdex opening at 10 a.m. on Monday, the Amiga Gallery opened in the Omni Hotel/CNN Centre across the street from the Congress Center. The "artworks" in the Gallery were more than 100 recently released or announced hardware and software products displayed on as many Amigas. All third party developers from the main CBM booth were on hand, complemented by many who came to Atlanta specifically to participate in the Gallery.

Invitees to the initial Gallery viewing included press, presidents of Amiga User Groups, and other honored guests. An hour after the Gallery opened, Commodore conducted a press conference. All Commodore's top brass were on hand, including Chairman Irving Gould, Commodore president Max Toy, and President of Commodore U.S. Rich McIntyre, and several vice-presidents, senior executives and other CBM luminaries.

Introductory remarks were made by Toy and McIntyre, but the longest, most substantive presentation was done by Dr. Henri Rubin, head of Amiga new product development and research. Dr. Rubin illustrated his speech with one of the best large-screen projection systems I have ever seen connected to a personal computer. The colors and image clarity really did the Amiga justice. With a screen more than 20 feet high, the real time demonstration was seen clearly by every one of the several hundred individuals in the room.

The presentation started slowly, with an overview of the Amiga's features and abilities, which was somewhat wasted since the majority of the people in the room were already "converted." The focus then moved to a discussion and demonstration of new Amiga products. In the software area, features of AmigaDOS 1.3 were reviewed, as well as the current development status (Gamma 7 had just been distributed at the Developers Conference the previous week).

As for hardware, the A2024 High Resolution Monochrome Monitor, the A2286 AT Bridgecard, the A2620 68020 card, and the A2090A Autoboot Hard Disk Controller were discussed and/or demonstrated. No unexpected announcements were made (at least publicly) by Commodore. Interestingly enough, all the above products were announced or shown at Comdex in Las Vegas last November. Despite the six month interval, no definite availability for these products was given, except for a vague reference to late summer or fall. (So much for Commodore's supposed new policy of not unveiling new products before they are ready to ship.)

Two new products that had been previously announced received their first major public showing in the U.S. The first was Commodore's implementation of UNIX for the Amiga, which was first demonstrated at the Hannover Fair in March. UNIX is not generally known for its user-friendliness; however, Commodore has built a proprietary windowed interface around an AT & T System V Release 3 core. While it did not appear as fully featured as the traditional Workbench, the interface will certainly be helpful for neophytes or casual Amiga UNIX users.

One of the interface's nice features is its use of variably-sized drop shadows which add a realistic depth relationship between windows. Also notable is the fast scrolling speed of text, even with multiple tasks running in various windows. To run Amiga UNIX on your A2000, you will need the A2620 card which has a 68020, a 68881 math coprocessor, a 68851 memory management unit, and 4 megabytes of 32-bit RAM. The addition of this card essentially gives you the 2500UX machine mentioned in Hannover.

Since no reference was made to them at Comdex, it is still uncertain whether the 2500UX/AT Amigas will be marketed in North America. However, since these machines appear to be stock 2000's bundled with appropriate optional cards, Amiga owners will be able to put together functionally equivalent systems, even if the 2500 label isn't on the box. If the combined pricing for Amiga UNIX and the A2620 is reasonable, we could see Amigas moving into the realm of a low cost UNIX workstation for universities, CAD/CAM users and other traditional Unix users. In addition, if OS2 does not do well, and UNIX becomes a viable alternative in the business world (as some people are predicting), the Amiga would have another feature to aid its entry into that market.

The A2350 Professional Video Adapter also attracted much enthusiasm. The PVA is a combination genlock, frame grabber, and digitizer on two cards, occupying the A2000's standard slot and the video slot. It was previously shown at the World of Commodore in Toronto last December, but Dr. Rubin wowed the crowd this time by focusing a video camera on a member of the audience during the presentation to demonstrate the real-time frame grabbing capabilities. The bigger than life-size output projected onto the large screen showed that "professional" is no misnomer here.

Two sets of RS170A jacks, with both composite RCA and RGB outputs, allow input to the PVA. The PVA software provides onscreen, mouse-based control panels which allow you to switch between Amiga, external, or combined video sources, as well as user selected or computer optimized palettes, and adjustments for contrast, brightness, and color levels of digitized images. While the PVA does not have as many bells and whistles as NewTek's Video Toaster, its release by Commodore will entrench the Amiga in the video market.

After the press conference, Commodore hosted a luncheon for invited guests, followed by a mid-afternoon lunch for developers from the Gallery. Later in the afternoon, the Gallery reopened for a viewing by Amiga dealers, followed by a special presentation to dealers which rehashed the morning press conference. A six o'clock reception wrapped up the day. Popular demand kept the Gallery open past its scheduled closing time, forcing many developers to miss much of the reception.

A Walk Through the Gallery

While Commodore may not have made any major new announcements, many third party developers presented enough new or nearly completed products to satisfy the most rabid Amigaphiles. A number of strolls through the Gallery unmasked the following:

Ed Lippert of C Limited showed off the company's first hardware products for its SCSI-based Amiga office network, including a 300 dots-per-inch non-PostScript laser printer dubbed LazerXpress (supposedly manufactured by General Computer). This printer will be accessible by seven computers simultaneously, and will be temporarily supported by a Preferences driver. C Ltd. plans to work with software developers who wish to modify their software to bypass Preferences and write directly to the laser, leading to much faster throughput. The LazerXpress will be bundled with special copies of Publishing Partner Professional and Express Paint, and 500 Amiga bitmap fonts for a suggested list price of $2499.

Commodore's Ken Weber and Neil Harris of Atari discuss niche markets.

In addition to the laser printer, C Ltd. is also offering a SCSI interfaced DEST scanner with Amiga controlling software. This model can scan at various resolutions, ranging from 100 to 300 dpi, and will have a suggested list price of $1699 for the graphics version or $2399 with OCR software included.

While this hardware may be reasonably priced for an office environment, it is clearly beyond the means of most people who want to produce good-looking documents with a dot matrix printer. SoftLogik may have the answer for these people in Publishing Partner Professional. Although it has been advertised for several months and was still six to eight weeks away from completion when we saw it at Comdex, even in its unfinished state it looked to be a very impressive package. With its very extensive list of features, Publishing Partner Professional will certainly provide some stiff competition for all other Amiga desktop packages, including Gold Disk's Professional Page.

Publishing Partner supports PostScript, and also has its own version of a page description language for dot matrix printers. Some printouts we saw from 9-pin printers were as good as, if not better than, results from a 24-pin printer in high resolution mode. SoftLogik hopes to have the program ready to ship by AmiExpo in July, if not earlier. This date is welcome news to PageSetter owners who took advantage of the $50 offer to trade up to Publishing Partner Professional.

Excellence, another product which has been baking for a long time, was shown and started shipping during Comdex. Micro-Systems Software, the developers, and Brown-Wagh, the publishers, may be using cherry pies in their advertising, but this graphic word processor is definitely not the pits! Besides all the "advanced" word processing features, such as spell checkers, thesaurus, index generation, footnotes, macros, etc., Excellence also allows you to use Amiga fonts (in your choice of colors) and to embed graphics in your text. It looks like this one aims to be a major competitor to WordPerfect in the word processing market.

Rounding out the word processing/ desktop publishing field were a couple of upgrade and enhancement announcements. MicroSearch will be shipping City Desk 2.0 in mid-July at a suggested list price of $199.95, with upgrades going for $35. New features include automatic text flow around irregular graphics, scalable PostScript fonts and landscape printing, auto hyphenation, HAM import support, 16 levels of gray, a full-screen-sizeable text editor and more. Meanwhile, New Horizons demonstrated its add-on PostScript module for ProWrite 2.0. ProScript will naturally include support for PostScript fonts and conversion of colors into gray shades. Scheduled availability is sometime in the third quarter of 1988 with a price tag of $49.

"Game alley" ran along one wall of the Gallery. The new offerings included MicroIllusions' Turbo, Ebonstar, and Romantic Encounters at the Dome. Mindscape showed Superstar Ice Hockey, which has many features similar to Earl Weaver Baseball; it should keep Amiga sports fans busy during the baseball off-season. Electronic Arts showed up with World Tour Golf and Interceptor, the latter scheduled for release by the time you read this. Discovery followed up on Arkanoid with Zoom, which, from my brief viewing, seemed to be a 3-dimensional Pac-Man clone in a space setting. For arcade fans, Digitek has started shipping Vampire's Empire.

Spectrum Holobyte was not in the Gallery, but was on the floor at Comdex. Their representative discussed the company's intention to release Amiga versions of Solitaire Royale (a collection of solo card games), Tetra (a game originally developed in Russia and now doing very well in the IBM market), and Gato.

Focusing in on the video and graphics market, digitizers, genlocks, and real-time image capturing devices were abundant. A-Squared showed a new model of Live! for the 500. Progressive Peripherals had their FrameGrabber. NewTek showed their DigiView with accessories, but no Toaster. Mimetics promoted their FrameBuffer, and Impulse their VD1 "real-time freeze-frame video digitizer" (Try saying that quickly with your mouth full!)

Similarly, there was no shortage of graphics, paint, and raytracing programs, with Express Paint, Electronic Arts' Photo Lab (a HAM paint program with advanced features), Aegis' Videoscape 2.0, and Lights, Camera, Action! (a sound and animation package), MicroIllusions' Photon Paint, and Impulse's Turbo, Silver, and Diamond all displayed or promoted for release "real soon now."

Some of the most interesting and innovative new products at Comdex came from the hardware market. Perry Kivolowitz of ASDG showed the TwinX General Purpose I/O board for the A2000, which allows you to mount two IEEE 959 expansion modules. "General purpose" is an apt term indeed! This interface standard has been around for many years and hundreds of modules are available for such things as SCSI controllers, RS232 ports, streaming tape controllers, battery-backed RAM, bubble memory, parallel ports, ethernet controller and so on. ASDG will produce drivers and support software for some of the more popular modules.

Future Touch showed their Amiga 1084 monitor, modified to include a touch screen. The hardware is made by Elographic, which produces resistor overlay, capacitor overlay, scanning infrared and surface acoustic wave touch screens for retrofitting to various monitors. For mousephobes, this is a viable alternative. Future Touch is marketing the touch screen monitors with a bundled Amiga-based system for applications like public information booths, computer based training, point of sale terminals, brokerage/financial/ executive information workstations, etc. There could be a very interesting niche market for the Amiga in these areas.

Haitex showed their Amiga controlled 3D-LCD shutter goggles. These plug into the joystick port and provide a fantastic 3D feeling of depth without color distortion. Besides technical uses, like CAD or molecular chemistry, these goggles can also add a whole new dimension to computer games. A sample space game is included with the goggles, and other software developers are apparently planning to produce products that will take advantage of the goggles. Look for a June or July release with a suggested price of $129.

Inner Connection showed its single and double 20 MB Bernoulli boxes for the Amiga. They also announced a contract with Interactive Video Group for the production of various models of a computer-aided video editor board for the 2000 and the 500. According to the literature, this board will allow "true frame accurate control of any VHS/Beta or 8mm consumer remote controlled VCR." A software utilities package will provide image indexing and manipulation, as well as routines for sound storage. A full implementation of an authoring system for the development and design of interactive video is also planned.

The preceding is just a sample of the Amiga products shown in Atlanta. As you can see, third party developers were critical to the success of the Amiga at Comdex. Comdex is, in many ways, based very much on "glitz"—you must have something special to make you stand out among hundreds of exhibitors. Commodore tried its best, but was simply not able to do this on its own. Wisely, it brought in people who could make the Amiga really shine. Let's hope Spring Comdex '88 will have a significant impact on the sales of software, hardware, and Amigas over the next year.

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MicroBotics means Amiga™-Power!

Whichever Amiga you own –or plan to buy– we have the expansion you need

For the

Amiga 2000...

HardFrame/2000

Super Speed DMA SCSI Interface

If your application calls for super-speed uninterrupted access to your harddisk, HardFrame/2000 is your answer. This is a high-end, no holds barred SCSI interface that operates at bus speeds. With cable pinouts designed for compatibility with low cost Macintosh hard drives, one HardFrame/2000 can support up to seven devices. Word-length data transfer, FIFO buffering, true DMA, all mounted on a metal frame suitable for mounting standard SCSI 3.5" drives "hard-card" style (or, if you prefer, cable connected to a bay mounted or external disk). Available March/April. Suggested List price $329.

SB2000 Adaptor Card

StarBoard2 Portability

Large numbers of MicroBotics StarBoard2 owners have moved over to the A2000. To protect their investment in our technology we've made available a simple, low-cost adaptor card that permits the installation of a "de-cased" StarBoard2 inside the Amiga 2000 (in the first 100-pin slot). When adapted to the 2000, StarBoard2 is still fully functional autoconfiguring memory plus you get access to all the StarBoard2 MultiFunction options– StickyDisk, Math chip, parity or the new SCSI Module. Available now. Suggested list price is only $49.95.

8-UP! FastRAM

Maximum Memory in One Slot!

The FastRAM card that every Amiga owner will eventually come to –why limit yourself to the possibility of only two megabytes per slot when 8-UP! will take you all the way to the top of the autoconfiguration memory space of EIGHT MEGABYTES ! 8-UP! uses an exclusive MicroBotics-designed memory module, PopSimm, that frees the user to install his own, conventional DIP-style DRAM in standard SIMM sockets on 8-UP!. If you use 256k PopSimms you can install two megabytes on 8-UP!; if you install 1 meg PopSimms, you can install eight megabytes on one card! In either case you can install the memory chips yourself for maximum flexibility and mininum cost. 8-UP! will also accept conventional SIMM memory. 8-UP! is a power efficient, zero wait state, autoconfiguring design. 8-UP! will be available 2nd quarter of 88. Suggested list prices start at $199.

For the

Amiga 500...

M501 Memory+Clock

Half a Meg at a Great Price!

As we are all coming to realize, a 1-megabyte Amiga (at least) is a necessity not an option. When you add the inboard 512k memory and clock module to your A500, make it a MicroBotics-brand, plug compatible work-alike. It uses the exact same kind of memory and the exact same clock and battery. And note that just like Commodore and unlike some third-party expansions, we use a long-lived rechargeable Ni-cad battery by Varta– which you'll never have to replace! Set the MicroBotics clock using the same software (on your WorkBench disk) as you use for the Commodore clock. What's the difference? You get to keep $21 compared to the Commodore version. M501 has a suggested list price of only $179.

MicroBotics,Inc.

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StarBoard2/500

Two Megs and a Choice of Modules

The premier memory expansion for the A1000 is now available on the A500. In a sleek, redesigned case with an independent power supply strong enough to power StarBoard2 and another A1000-style StarBoard2, all the power and flexibility of this great expansion device is available to you. Up to 2 megabytes of autoconfiguring, zero-wait state FastRAM, MultiFunction or SCSI module capability for either math chip/StickyDisk functions or fast SCSI harddisk interfacing. StarBoard2/500 also has a unique LED diagnostic/confidence light to indicate the powered up state of your Amiga and your expansion memory. Another A1000 style StarBoard2 can be connected to the expansion bus pass-UP (it exits through the top of the case) for a total of FOUR megabytes of memory and two modules. Suggested list price $339 and up.

For the

Amiga 1000...

StarBoard2

The Expansion Product of Choice

The superb memory expansion for the Amiga 1000, still going strong! Up to 2 megabytes of zero-wait state, autoconfiguring FastRAM in a sleek, all steel Amiga-colored case plus the capability to accept either one of two daughterboard modules: the original MultiFunction Module or the brand new SCSI Module. StarBoard2 is powered by the bus (up to two StarBoard2's can be supported by the A1000) and passes it on. Available now; suggested list price $339 and up.

MultiFunction Module

High Tech at Low Cost

This "daughterboard" installs on any StarBoard2 (all three Amiga models). It features a socket and software to support the Motorola 68881 Math Chip as an I/O device (MicroBotics pioneered this approach on the Amiga –now directly supported in the math libraries in the new AmigaDOS1.3). StickyDisk gives you the most "bullet-proof" rebootable ram disk –its hardware write protection turns the whole device into a solid state, superspeed disk. alternately, parity checking of StarBoard2 memory can be enabled when extra parity RAM is installed. Finally, the MultiFunction Module carries an easy to use battery-backed clock to set your system time on start-up. Available now; suggested list price $90.00.

StarDrive Module

Speedy, Low-cost SCSI Interface

As an alternative to the MultiFunction Module, all models of StarBoard2 can accept this new hard disk interface. StarDrive affords you cost-effective, pseudo-DMA access to Macintosh compatible SCSI drives and other third-party SCSI devices. Fast, easy to install including driver software and disk diagnostics. StarDrive also has a battery backed clock to set your system time on boot-up. Available now. Suggested list price: $129.95

MouseTime

The Port Saving Clock

The easiest-to-use, most cost effective implementation of a battery-backed mouse port clock for the A1000. MouseTime passes the port through for joysticks or other devices. Complete with WorkBench software. Available now. Suggested list of $39.95.

"Amiga" is a registered trademark of Commodore-Amiga. "StarBoard2", StarBoard2/500", "HardFrame/2000", "8-UP!", "PopSimm", "StarDrive", and "MouseTime" are trade names of MicroBotics products.

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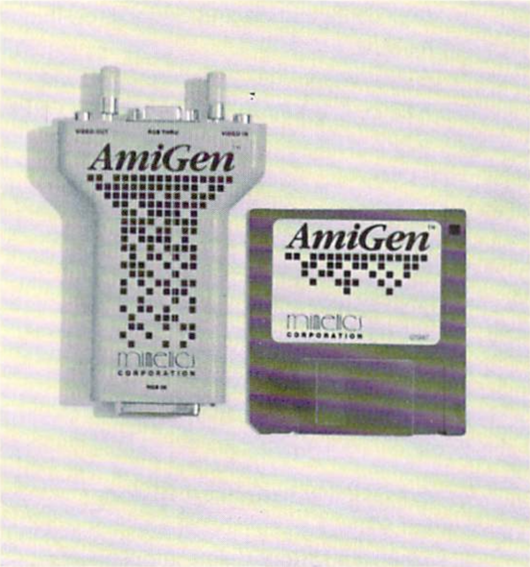

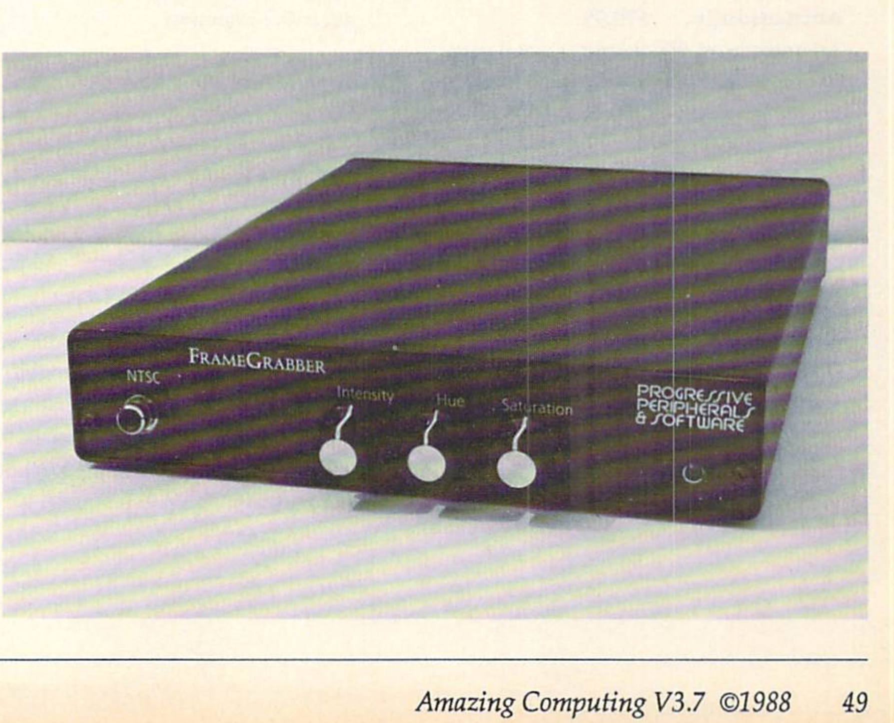

ANIMATION

Aegis Animator $139.95
Three animation techniques combined in a desktop video system. Includes paint system and public domain animation program.
Aegis Development, Inc., 2115 Pico Blvd., Santa Monica, CA 90405, (213) 392-9972

Animate-3D $149.95
Allows you to animate Sculpt-3D programs.
Byte by Byte, Aboretum Plaza II, 9442 Capitol of Texas H-Way N., Suite 150, Austin, TX 78759, (512) 343-4357

Animation:Apprentice $299.95
Full 3D character animation package includes shading, highlights, scripting playback, record, object editor, texture mapping.
Hash Enterprises

Animation:Effects $49.95
Flip, scroll, fade titles or any IFF picture. Includes specular and diffuse reflection. Full transformations.
Hash Enterprises

Animation:Flipper $39.95
Pack a series of IFF pictures so that they animate in real time. Batch entry for cycling. A pencil-test program.
Hash Enterprises

Animation:Jr. $79.95
An entry level 3D character animation package. Includes shading, highlights, scripting, playback, record, 4096 colors, texture mapping.
Hash Enterprises

Animation:Stand $49.95
Performs functions similar to a real camera animation stand. Includes distortion and zooming.
Hash Enterprises, 2800 E. Evergreen Bld., Vancouver, WA 98661, (206) 693-7443

Pageflipper $49.95
Desktop video/animation will script any IFF images, including HAM and overscan, with a simple interface.
Mindware International

Pageflipper Plus $149.95
Fast cel animation program supports scripting, anim formats, more. Structure editor interface to script manipulation.
Mindware International, 110 Dunlop W. Box 22158, Barrie, Ontario, Canada L4M 5R3, (705) 737-5998

Photon Video Cel Animator
$149.95
Animates and plays back in any sequence. Allows color and sound synchronization. Compatible with most other software systems.
Microillusions, 17408 Chatsworth St., Granada Hills, CA 91344, (818) 360-3715

The Director $69.95
Animation/presentation language compatible with IFF pictures, sounds, and anim files. Performs dissolves, wipes, page flipping, more.
The Right Answers Group, P.O. Box 3699, Torrance, CA 90570, (213) 325-1311

CAD

Aegis Draw $125
Create structured drawings, up to 256 layers of information.
Aegis Development

Aegis Draw Plus $259.95
Allows architects and designers full use of the Amiga environment. Many features and applications.
Aegis Development, Inc., 2115 Pico Blvd., Santa Monica, CA 90405, (213) 392-9972

Dynamic CAD 2.3 $499.95
Easy to learn, easy to use, flexible drafting system with many features.
Microillusions, 17408 Chatsworth St., Granada Hills, CA 91344, (818) 360-3715

HomeBuilders_CAD $199
CAD package for home owner and small contractor. Calculates materials needed and estimated costs.
EaseWare, 25 Belair Rd., Wellesley, MA 02181, (617) 237-2148

IntroCAD $79.95
Introductory CAD features approachable interface and highest quality output control.
Progressive Peripherals & Software, 464 Kalamath St., Denver, CO 80204, (303) 825-4144; FAX (303) 893-6938

Laser Up! Draw $89.95
PostScript screen drawing and illustration package duplicates most PostScript drawing functions.
S. Anthony Studios, 889 DeHaro St., San Francisco, CA 94107, (415) 826-6193

UltraCAD NA
User-friendly CAD tool with extensive coloring features, clipboard, more.
Progressive Peripherals & Software, 464 Kalamath St., Denver, CO 80204, (303) 825-4144; FAX (303) 893-6938

XCAD **$599.95**
2-D design and drafting tool, optional user configuration and optional on-line manual.
Haitex Resources, 208 Carrolltex Park, #1206, Carrollton, TX 75006, (214) 306-6746

CLIP ART

Art Gallery I & II
$29.95 each
Supplemental clip art for PrintMaster Plus. 140 graphics, mixed themes.
Unison World

Art Gallery: American History
$34.95
American history theme supplemental clip art for PrintMaster. 120 graphics.
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Art Gallery: Fantasy $29.95
Fantasy theme supplemental clip art for PrintMaster. 120 graphics.
Unison World, 2150 Shattuck Ave., Suite 902, Berkeley, CA 94704, (415) 848-6670

Art Parts, Vol. 2 $29.95
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Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404, (800) 245-4525; in CA, (800) 562-1112

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City Desk Art Companion Vol. 2: Banners, Borders and More
$29.95
200 high resolution IFF graphic images, including banners, scrolls, billboards, silhouettes and more.
Microsearch Inc.

City Desk Art Companion Vol. 3: Brushes and Screens $29.95
200 high resolution IFF graphic images including textures and patterns to be used as backgrounds or fill patterns.
Microsearch Inc., 9896 Southwest Freeway, Houston, TX 77074, (713) 988-2818

Clip Art, Disks 1-6
$19.95 per disk
Over 100 hi-res images on each disk, ranging from computer products to food, from zoo animals to the Old West.
Magnetic Images Co., P. O. Box 17422, Phoenix, AZ 85011, (602) 265-7849

Comic Art Series $34.95
More clip art for Comic Setter with body parts, backgrounds, props. Superhero, Sci-fi, Funny Figures modules available.
Gold Disk Inc., P.O. Box 789, Streetsville, Ontario, Canada L5M 2C2, (416) 828-0913

Deluxe Maps Vol. I $24.95
Create better reports and presentations with these IFF format U.S. regional and state map outlines.
Computer Arts, P.O. Box 529, Opp, AL 36467, (205) 493-6312

DeluxePrint Art Disk Vol. II
$29.95
Over 180 images with holidays, sports, buildings, people, vehicles and other themes.
Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404, (800) 245-4525; in CA, (800) 562-1112

Desktop Artist $29.95
Over 200 pieces of IFF format B&W clip art for use with any paint program.
Sunrize Industries, 3801 Old College Road, Bryan, TX 77801, (409) 846-1311

QUICK-ART Borders & Vignettes
$24.95
A 2-disk set.
Classic Concepts Futureware, P.O. Box 786, Bellingham, WA 98227, (206) 733-8342

Seasons & Holidays $29.95
A year's worth of art for every occasion. More than 100 images to use in cards, decorations, calendars, etc.
Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404, (800) 245-4525; in CA, (800) 562-1112

Video Visions Vol. 1 & 2 $19.95 each
Library clip art for video including backgrounds, animated loops for motion scripts.
CV Designs, 61 Clewley Road, Medford, MA 02155, (617) 396-8354

DESKTOP PRESENTATION

Impact! $89.95
Provides all the elements required to make impressive desktop presentations of data for graphs and slideshows.
Aegis Development, Inc., 2115 Pico Blvd., Santa Monica, CA 90405 (213) 392-9972

The Demonstrator $39.95
Records your demonstrations and allows you to play them back automatically, add speech, produce tutorials, and more.
Meridian, 9361 W. Brittany Ave., Littleton, CO 80123 (303) 979-4140

V.I.V.A Presents $250
Interactive desktop presentation and computer-based training.
Knowledgeware, P.O. Box 2292, Paso Robles, CA 93447, (805) 238-5233

FRAME GRABBERS/ DIGITIZERS

Digi-View 3.0 $199.95
Standard video digitizer. Version 3.0 has enhanced image quality, overscan. Supports halfbrite mode.
New Tek, 115 W. Crane St., Topeka, KS 66603, (913) 354-1146

Frame Buffer $699.95
Buffer allows for 740 x 480 pixel resolution single frame display in up to two million colors.
Mimetics Corporation

Frame Capture $199.95
Frame grabber captures single frame of full color NTSC video in one 1/15 of a second in four fields.
Mimetics Corporation, P. O. Box 1560, Cupertino, CA 95015, (408) 741-0117

FrameGrabber $599.95
Real-time image digitizer for all Amigas.
Progressive Peripherals & Software, 464 Kalamath St., Denver, CO 80204, (303) 825-4144; FAX (303) 893-6938

Impulse Video Digitizer $499.95
Capture, freeze, and digitize any NTSC video source in full frame or single fields.
Impulse, Inc., 6870 Shingle Creek Parkway #112, Minneapolis, MN 55430, (612) 566-0221

(continued)

LIVE! $295
Digitizes a moving color image in real time from any video source.
A-Squared Distributions Inc., 6114 LaSalle Ave., Oakland, CA 94611, (415) 339-0339

Perfect Vision $219.95
A video "frame grabber" digitizer with IFF format save.
Sunrize Industries, 3801 Old College Road, Bryan, TX 77801, (409) 846-1311

FONTS

AlohaFonts Vol. I $19.95
20 different fonts for desktop publishing and graphics applications.
AlohaFonts, P.O.Box 2661, Fair Oaks, CA 95628-2661

BoardWalk Font Set $49.95
Font set containing the BoardWalk font in various sizes of Upright, Italic and Cilati styles.
C Ltd.

Borders Font Set $49.95
Font set containing an assortment of borders and outlines in various point sizes.
C Ltd.

Business Font Set $79.95
TRP font (similar to Times Roman) and HVP font (similar to Helvetica) in Upright, Italic, Bold/Upright and Bold/Italic styles. 2 disk set.
C Ltd., 723 East Skinner, Wichita, KS 67211, (316) 276-6322; FAX (316) 267-0111

CalligraFonts/Lion's Assorted
$59.95
150 fonts in a 4-disk set for desktop publishing, video, presentations.
Interactive Softworks, 2521 S. Vista Way, Suite 254, Carlsbad, CA 92008, (619) 434-5327

Celtic Open Font Set $49.95
Celtic Open font set in various sizes of Upright, Italic and Cilati styles.
C Ltd., 723 East Skinner, Wichita, KS 67211, (316) 276-6322; FAX (316) 267-0111

CGI Font Library Set 1 & 2
$99.95 each
Alternate font libraries compatible only with PRO VIDEO CGI. Each set contains 4 styles in 3 sizes. Bonus disk included.
PVS Publishing, 3800 Botticelli, Suite 40, Lake Oswego, OR 97035

Classic Script Font Set $49.95
Classic Script font set in various sizes of Normal, Bold, and Light/Outline styles.
C Ltd.

Commercial Font Set $99.95
TRP font (similar to Times Roman) and HVP font (similar to Helvetica). Regular and bold in Upright, Italic, Cilati styles. 4 disk set.
C Ltd., 723 East Skinner, Wichita, KS 67211, (316) 276-6322; FAX (316) 267-0111

FastFonts $29.95
Set of utility programs designed to enhance system operation.
MicroSmiths, Inc., P.O. Box 561, Cambridge, MA 02140, (617) 354-1224

Fonts & Borders $34.95
40 supplemental fonts and borders for PrintMaster Plus, and free upgrade disk for original PrintMaster.
Unison World, 2150 Shattuck Ave., Suite 902, Berkeley, CA 94704, (415) 848-6670

Fontset 1 $34.95
Fonts include Times, Helvetica, Courier. Several point sizes.
Gold Disk Inc., P.O. Box 789, Streetsville, Ontario, Canada L5M 2C2, (416) 828-0913

Headline Font Set $99.95
Four disk set containing headline sized (36 to 72 point) versions of HVP, Celtic Open, BoardWalk, Modern Open and others.
C Ltd., 723 East Skinner, Wichita, KS 67211, (316) 276-6322; FAX (316) 267-0111

KARA Fonts $79.95
Features ten hi-res dimensional color fonts in two sizes. 3 disk set.
KARA Computer Graphics, 6365 Green Valley Circle, Suite #317, Culver City, CA 90230

LaserUp! Fonts Vol. 1 $39.95
3 new downloadable analytic fonts for PostScript printers. Round, Classic, and Showtime, from 2 pts. to at least 64,000.
S. Anthony Studios, 889 DeHaro St., San Francisco, CA 94107, (415) 826-6193

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Over 100 fonts designed by Andre Page.
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Olde English Font Set $49.95
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C Ltd.

Simple Script Font Set $49.95
Simple Script font set in various sizes of Normal Bold, Double Bold, and Light styles.
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Studio Fonts, Vol. I $35
Includes several new fonts which can cycle and use up to 16 colors.
Interactive Softworks, 2521 S. Vista Way, Suite 254, Carlsbad, CA 92008, (619) 434-5327

SuperFont Sampler 2.0 $24.95
A 2-disk set.
Classic Concepts Futureware, P.O. Box 786, Bellingham, WA 98227, (206) 733-8342

Symbols Font Set $49.95
Single disk set containing an assortment of high resolution, commonly used symbols in various point sizes.
C Ltd., 723 East Skinner, Wichita, KS 67211, (316) 276-6322; FAX (316) 267-0111

SysFont
$24.95 direct order; $34.95 retail
Provides new fonts for system text displays.
Eraware, P.O. Box 10832, Eugene, OR 97440

Unity Roman Font Set $49.95
Unity Roman (similar to University Roman) font set in various sizes of Upright, Italic, and Cilati styles.
C Ltd., 723 East Skinner, Wichita, KS 67211, (316) 276-6322; FAX (316) 267-0111

Video & Headline Fonts 2.0
$24.95
A 2-disk set.
Classic Concepts Futureware, P.O. Box 786, Bellingham, WA 98227, (206) 733-8342

VIDEO Fonts $49.95
Hi-res, bit-mapped fonts not compatible with PRO VIDEO CGI. 11 styles in 30, 44, and 72 point.
PVS Publishing, 3800 Botticelli, Suite 40, Lake Oswego, OR 97035

Zuma Fonts Vol. 1-3 $34.95 each
Various font packages.
Zuma Group/Brown-Wagh Publishing, 16795 Lark Ave., Los Gatos, CA 95030, (408) 395-3838

GENLOCKS

AmiGen $179.95
Genlock allows Amiga to synchronize with any external video system and overlay graphic images. Interfaces with video switcher and special effects generator. RGB Thru connect allows Amiga monitor to be used with unit in place. NTSC and PAL versions available.
Mimetics Corporation, P. O. Box 1560, Cupertino, CA 95015, (408) 741-0117

GEN/ONE $895
Genlock encoder with overlay. Has separate 4C output for super-VHS.
Communications Specialties Inc., 6090 Jericho Turnpike, Commack, NY 11725, (516) 499-0907

Genkey NTSC model $745;
VHS model $995
Professional broadcast quality genlocks capable of over 400 lines of resolution. Built-in PROCAMP corrects the Amiga signal, and RGB output previews RGB signal.
Sci-Tech, 1450 NW 78th Ave., Miami, FL 33126, (800) 842-0070; in FL (305) 591-1620

ProGEN $399.95
Professional, software-controllable genlock for all Amigas.
Progressive Peripherals & Software, 464 Kalamath St., Denver, CO 80204, (303) 825-4144; FAX (303) 893-6938

SuperGen $749.95
Genlock and overlay device with many professional features, including RGB encoder.
Digital Creations, 1333 Howe Ave. #208, Sacramento, CA 95825, (916) 344-4825

GRAPHIC WORD PROCESSORS

BeckerText $150
Word processor that merges IFF graphics, hyphenates, and more within your document. WYSIWYG formatting, spellchecker, more.
Abacus Software, 5370 52nd St., Grand Rapids, MI 49508, (616) 698-0330

DesignText $129
"User-affectionate" word processor with WYSIWYG, many formatting options, peoplebase, and more. Also available in German.
DesignTech Business Systems, 850 Burrand St. Suite 304, Vancouver, B.C., Canada V6Z 2J1

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Word processor puts graphics in your documents with multiple fonts, styles, and colors. WYSIWYG display.
New Horizons Software, Inc., P.O. Box 43167, Austin, TX 78745, (512) 328-6650

Write & File $99.95
Integrated word processing and database management. Many features.
Softwood Company/Brown-Wagh Publishing, 16795 Lark Ave., Los Gatos, CA 95030, (408) 395-3838

(continued)

GRAPHICS TABLETS/ DRAWING TOOLS

Amiga Light Pen $129.95
Hi-res 2-button touch switch pen coupled with transparent driver. Allows user to choose Light Pen, mouse, or both alternately.
Inkwell Systems, 5710 Ruffin Rd., San Diego, CA 92123-1013, (619) 268-8792

AProDraw Graphics Tablet Package
9 x 6, $449; 12 x 12, $549
Up to 1000 lines per inch. Includes 2-button stylus, Summagraphics MM-Series tablet. Interfaces through the serial port.
R & D L Productions, 11-24 46th Avenue, 2A, Long Island City, NY 11101, (718) 392-4090

Easyl A500/1000/2000
$399/$449/$499
1024 x 1024 pressure-sensitive digitizer. Universal driver. Includes pegs to facilitate cel animation.
Anakin Research, Inc., 100 Westmore Drive Unit 11c, Rexdale, Ontario, Canada M9V 5C3, (416) 744-4246

IS/ONE $495
Graphic digitizing tablet interfaces through many software packages.
Kurta, 3007 Chambers East, Phoenix, AZ 85040, (602) 276-5533

LightBox—The Drawing Tool for Animators NA
Allows the animator to draw in the traditional manner with increased productivity. Instant feedback via flip function.
Available Soon.
R & D L Productions, 11-24 46th Avenue, 2A, Long Island City, NY 11101 (718) 392-4090

IMAGE PROCESSING

Butcher $37
Graphics utility program. Includes edge detection, resolution changes, pixel counting, much more.
Eagle Tree Software, P.O. Box 164, Hopewell, VA 23860, (804) 452-0623

Doug's Color Commander
$29.95
Color gadget for any Amiga program. Can be run simultaneously with other programs.
Seven Seas Software, P.O. Box 411, Port Townsend, WA 98360, (206) 385-3771

PhotoSynthesis $149.95
Image processing system with over 40 operations. Many applications and features.
Escape Sequence Inc., P.O. Box 1101, Troy, NY 12180, (518) 274-1547

PIXmate $69.95
Professional image enhancement package for all Amigas.
Progressive Peripherals & Software, 464 Kalamath St., Denver, CO 80204, (303) 825-4144; FAX (303) 893-6938

MONITORS/MONITOR ACCESSORIES

1084 RGB 13" Monitor $399.95
NTSC composite video encoder with RF modulator.
Commodore Business Machines, 1200 Wilson Dr., West Chester, PA 19380, (215) 431-9100

Color Enhancement Filter
$19.95
Improves color and contrast while eliminating screen flicker. Also improves monitor apearance by producing a hi-tech "black-out" effect.
Gladstone Productions, 7744 Pickering Ave., Whittier, CA 90602, (213) 696-3372

FlickerFixer $595
Removes the flicker in the interlace mode and the visible scan lines in the non-interlace mode of the A2000 display.
MicroWay, P.O. Box 79, Kingston, MA 02364, (617) 746-7341

NoRad dB60 Anti-glare/Static/ Radiation Filter $129.95
Grounded filter reduces flicker in high-resolution or interlace mode. Easy maintenance.
Brookfield Communications, 3820 Griffith View Drive, Los Angeles, CA, (213) 668-0030; (800) 533-dB60

PAINT PACKAGES

Aegis Images $39.95
Full-featured paint system with over 4000 colors, wide selection of tools, and pantograph option.
Aegis Development, Inc., 2115 Pico Blvd., Santa Monica, CA 90405, (213) 392-9972

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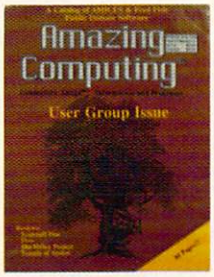
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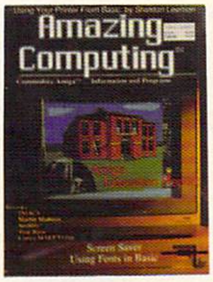
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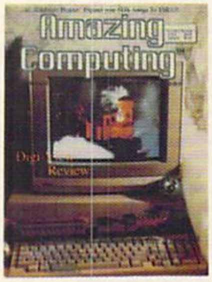
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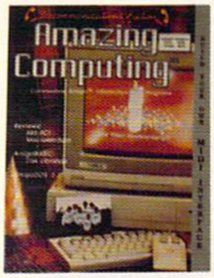
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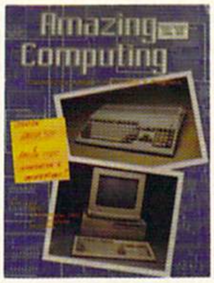
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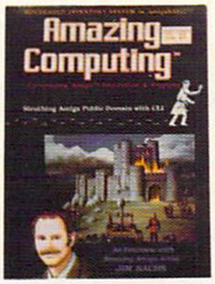
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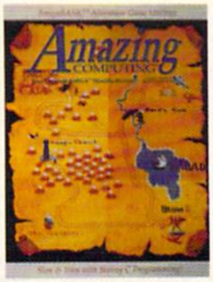
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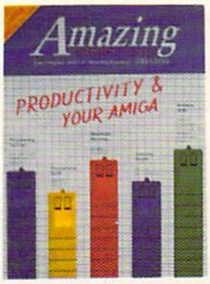
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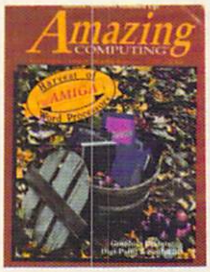
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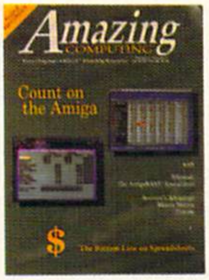
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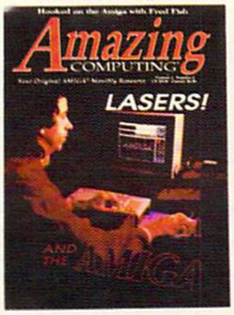
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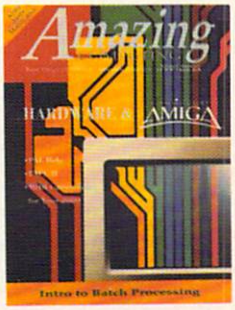
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Converts DRAW and DRAW+ drawings to hi-res dot matrix printer bitmaps, up to 9,000,000 dots per page. Requires 2 disk drives.
Hi Tech Graphics, P.O. Box 446, Tallmadge, OH 44278

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Create and extrude 3-D objects for use with Render 3D. Fully compatible with other products. Many features.
Microillusions

Photon Video Render 3D NA
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Microillusions, 17408 Chatsworth St., Granada Hills, CA 91344, (818) 360-3715

Sculpt-3D $99.95
Powerful 3-D drawing program. Solid modeling and ray tracing for the Amiga.
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InnoVision Technology, P.O. Box 743, Hayward, CA 94543, (415) 538-8355

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C Ltd.

C-View II $49.95
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V-I 500, V-I 2000 $59.95;
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Video interface that supports a variety of video standards provides quality color composite video signal, generates chroma/luna signals.
Creative Microsystems, Inc., 10110 S. W. Nimbus #B1, Portland, OR 97223 (503) 684-9300

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Software interface which joins the Amiga and Video Media's V-LAN for video editing.
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RGB Video Creations, 2574 PGA Blvd., Suite 104, Palm Beach Gardens, FL 33410, (305) 622-0138

MediaPhile $525
Allows computer control of A-V equipment. Edits video tape, records database, plays back automatically from one or two decks.
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Graphics on the Amiga $19.95
Amiga book on graphics by M. Kohlen.
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Library of over ninety graphics-oriented commands. Includes device independent 2-D graphics, multiple viewports and screens, zoom panning, color mixing, many other commands, and a full-featured paint program.
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Inky Dink NA
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Jet Technology, 16 Pembroke Road, Weston, MA 02193, (617) 239-8383

Video Cataloger $34.95
Keeps track of your video collection.
Sunsmile Software, 533 Fargo Avenue, Buffalo, NY 14213

•AC•

Continued from page 14

Shorten or Remove Our PDS Catalog?
We cannot remove the PDS catalog! The seven pages required for the PDS catalog each month are a small price to pay for the user activity they receive. At the Amiga Developers Conference 1988 in Washington, DC. (see the article in AC V3.6), copies of AC were quickly referenced as the assembled developers ravaged Commodore's collection of Public Domain Software. AC's seven page PDS catalog supplied descriptions unavailable elsewhere, and made selection quick and easy. This same scene is replayed in Amiga user groups throughout the world, and we love it!

The Future.
Amazing Computing wants to grow even further. We see the need for an expansive magazine which carries information on all levels to a variety of users. More BASIC articles, more in-depth reviews, multiple computer language listings, and other ideas that are still formulating, will keep *Amazing Computing* the leader in usefull Amiga user information.

Amazing Computing has produced more editorial content and more articles than any other Amiga resource. We wish to expand this position. We will continue to offer product guides, program listings, special features, and other items as they become available, because we appreciate the trust the Amiga users have placed in us. Even if this requires issues without editorials.

See you next month... maybe...

Don Hicks
Managing Editor

P.S. When I started this editorial, I was targeted for two pages in the front of this issue. Now at layout, my editorial has been cut into three pieces and scattered wherever space would permit.

I apologize for the inconvenience, but it does illustrate my point. Editors at *Amazing Computing* are the first to have their material cut.

•AC•

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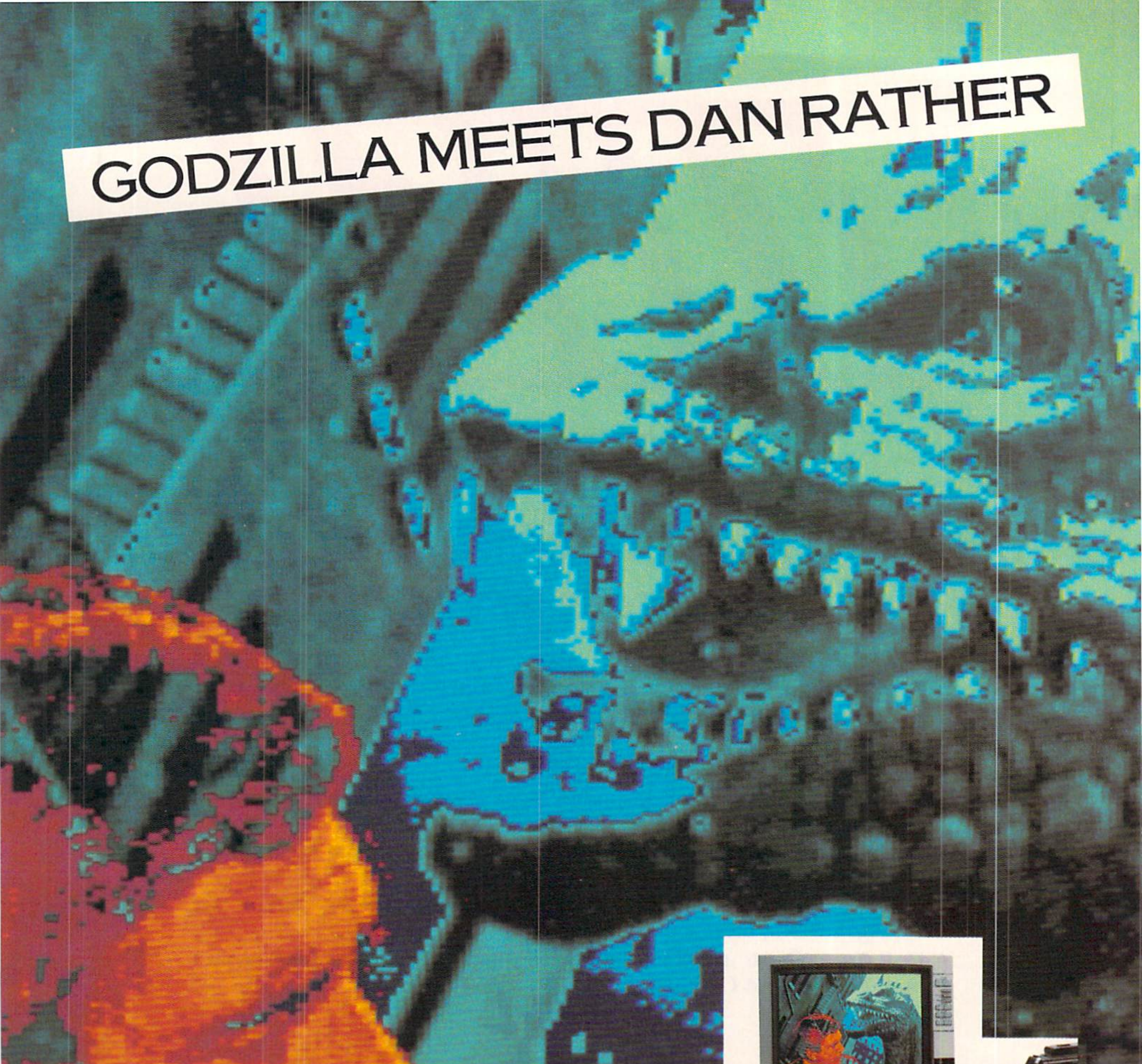

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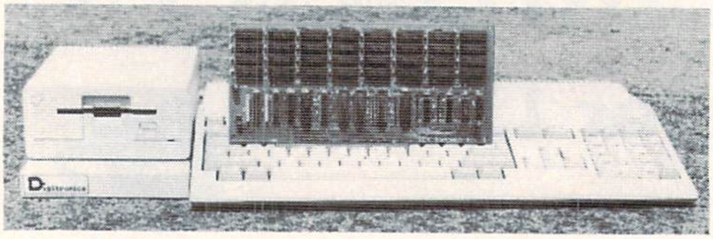

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1> **by Rich Falconburg**

The Command Line

A Continuing Guide to the CLI

You've seen how to examine the contents of a text file by using the TYPE command without options. TYPE also allows us to view files in a raw format using the OPT H (hex) option. Using this option will cause a hexadecimal dump of the file contents.

```
1> TYPE OPT H DemoFile
0000: 49277665 20626565 6E206172 6F756E64  I've been around
0010: 20616E64 20747269 65642074 68652072  and tried the r
0020: 6573740A 69662079 6F752061 736B206D  est.if you ask m
0030: 652C2041 6D696761 27732074 68652062  e, Amiga's the b
0040: 6573742E 0A                          est..
```

This format will allow you to see where non-printing (control) characters such as Line Feed (^J), Control C (^C), or Carriage Return (^M) are located. You should be familiar with the ASCII table to use this option. It's a more useful variation is the OPT N option. This will cause line numbers to be printed at the beginning of each line of the text file.

```
1> TYPE OPT N DemoFile
1 I've been around and tried the rest

2 if you ask me, Amiga's the best.
```

If you're looking for specific information in a long text file, it's often easier to use the SEARCH command. Suppose you have a large text file containing a list of the files available from your favorite Bulletin Board System. And if you're interested in some picture files, and you know that they're scattered throughout the listing, you can search for character strings that contain "pic" in them.

```
1> SEARCH BBS.list pic
```

This will cause every line in the file BBS.list containing the characters "pic" to be displayed. Each line is preceded by the number of the line that it occurs on. To search multiple files, use wild cards or provide a directory name in place of the file name. With the directory approach, SEARCH will look through every file in the directory. If a file containing binary data is encountered, SEARCH only looks for the ASCII character strings in the file.

Normally you should abort a search of that type of file with a CTRL D. This will cause SEARCH to skip to the next file in the directory and continue. To stop the search completely, use CTRL C. If the directory contains subdirectories that you want searched as well, use the ALL qualifier.

```
1> SEARCH BBSFiles pic ALL
```

If the character string you want to search for contains spaces, it must be enclosed in quotes. SEARCH will scan through each file in the directory and print the name of the file followed by any lines that match the characters specified in the search string. To reduce the probability of a match with imbedded characters (parts of words), place the string in quotes and use spaces to delimit the string. Check the following example.

Let's examine another powerful feature of AmigaDOS. You have a number of BBS lists and would like to create a permanent copy containing the output of the above command. How do you go about doing this?

```
1> SEARCH > PicFiles BBSFiles " pic" ALL
```

The "greater than" sign (>) is known as a redirection operator and alters the destination of the output. Normally, output goes to the console window, while input comes from the keyboard. In the above command, I have instructed AmigaDOS to write the output to the file "PicFiles". Nothing will be displayed in the console window as it was before. Input to a command may also be redirected using a "less than" sign (<). This operator will cause data to be accepted from somewhere other than the keyboard. You may use valid devices and file names for the destination or source.

The concept of redirection is a bit confusing at first. Just remember to place the operator (> or <) immediately following the command. Some commands will not allow the use of redirection. This is usually because the command provides its own qualifiers for defining input and output.

Some BBS's sort files by the date. It's generally much easier to find a file when the list is in alphabetical order. Can you re-sort the list by the file name? You bet! First, a word to the wise about the SORT command.

(continued)

WARNING!!
The SORT command performs operations in memory. The default STACK size is 4000 bytes, which may not be enough. If the stack size is insufficient, you will meet the guru without warning.

Use the STACK command to increase the stack size before the sort is performed. The stack is an area of memory where information used by a process or a program is temporarily stored.

```
1> STACK 1000
```

Now pick any text file not in alphabetical order and use this syntax (the FROM and TO are optional):

```
1> SORT FROM BBS1-files TO BBS1.alph
```

SORT will examine each line in the file BBS1-files (a line is terminated by a Line Feed character) and perform an alphanumeric sort starting at the first column. The result is then written to the file BBS1.alph. If you have a file with a standard format—i.e., each line has similar data lined up on the same columns—you may define the starting column to use as the sort field. For example, to sort a directory by file size, first redirect the output to a file and then sort the file starting at column 25.

```
1> LIST > temp.srt
1> SORT temp.srt FileSize.srt COLSTART 25
```

This produces a very nice listing that starts with the smallest file and ends with the largest. If the sort field you want to use starts at column one, it is unnecessary to include the COLSTART qualifier.

The BBS files examples are very nice but you have several lists and it would be more convenient to combine all the sorted BBS lists together as one. So...

```
1> JOIN List1 List2 List3 List4 AS BBSPics
```

The AS qualifier is required. The new file name must be different from those in the JOIN list. You can supply up to fifteen (15) files to JOIN, and the destination may be a device such as PRT. Each file specified is concatenated to the file BBSPics. To help identify the individual lists, you may want to use ED to place the BBS name at the top.

```
1> ED filename
```

"Filename" is the file you wish to edit. This invokes the system full-screen text editor and reads in the contents of the file. To move the cursor around, simply use the four arrow keys on the keyboard. The BACKSPACE key will erase characters to the left of the cursor, while the DEL key will pull the characters in on the right of the cursor. New characters are inserted by pushing text to the right as it is entered. To delete a line use CTRL B. The bottom line on the screen is the ED message and command line.

To enter the command mode, press the ESC key. Doing so will cause the cursor to appear at the bottom of the screen next to an asterisk (*), the command prompt. To exit this mode without entering a command, simply press RETURN. To exit ED without changing anything, enter a Q at the command prompt and press RETURN. To exit and save your changes, enter X at the command prompt and press RETURN.

To add the aforementioned label, press RETURN and the UP arrow key to enter the text on a new line. Save the file out by first pressing the ESC key to obtain the command prompt, then enter SA and press return. The file will be saved out as the name provided when ED was started. To read in the next file, first insure you are at the top of the document by pressing CTRL E. Then press ESC and enter IF/List2 (or other filename after the slash) and press return. If the slash is a problem, (and it will be if a path is specified) any character except numbers, letters, brackets ([]), semicolon (;), or space may be used as the delimiter.

The new file will be read in and you may perform a similar operation on it. If you save the edited version as a new file, add a slash (or other delimiter) and the new name following the SA command. After editing and saving all your files, use JOIN to create a combined list.

A Workbench Tour

The Workbench disk supplied with the Amiga contains a lot of information (98% full!) necessary to the normal operation of the computer. Some of this information is placed in memory when the system is booted, while other files are loaded as needed. However, much of the data is never used. You obviously don't own every printer included on the printer driver list.

Eventually, you'll want to add files, commands, or programs to your Workbench disk and you will meet that wonderful requester proclaiming that the disk is full. Don't panic yet. You can eliminate several files to increase space. As I describe the contents of the directories, I'll suggest which files to delete.

WARNING! Do NOT perform any of the suggested modifications on the original Workbench disk. Use a backup instead.

You've learned that the C/ directory is where the commands used by AmigaDOS are "hidden." Depending on your usage, there are several files here that may be deleted. Some you might consider are:

BindDrivers
SetDate
Skip FailAt
Version
Edit
FileNote
Sort
Lab
Addbuffers
ChangeTaskPri
Protect
ReLabel
Quit
Wait
Join
Why

Most of these I have yet to cover, and if you intend to do much batch processing, several of the above commands will be necessary. Obviously, if you use the command, you shouldn't delete it. The devs/ directory contains information about devices (the ".device" file), such as the printer, serial, and parallel ports. The files are called drivers because they provide the operating system with information about how to talk to or "drive" the different devices at the lowest level.

The "system-configuration" file is where the information generated by the Preferences utility is saved. For AmigaDOS to recognize other devices added to the system they must be defined in the "mountlist" file. I'll explain this file in greater detail when I cover the commands related to devices.

The printers/ subdirectory is where all the printer drivers are located. You will gain a lot of space here by deleting all the drivers except the ones you need. An easy way to accomplish this is to deny Delete access on the files you want to keep, using the Protect command (covered last issue). Now delete everything in the directory using the "#?" wild card.

The keymaps/ directory contains the definition files for different types of keyboard layouts. Delete all but the one normally used (usa0 or usa1). The clipboard/ directory is for passing information between applications. It is normally empty. The L directory contains handler files that work in concert with the drivers to provide an accommodating multitasking environment. This combination allows great flexibility for enhancements and adding new features. Don't tamper with any of these unless you know what you're doing.

The libs/ directory contains files used to centralize common information that all programs use. If you don't use the Say command, the translator library may be deleted. The T/ directory is used by the EXECUTE command for temporary execution files. And there's the S/ directory where script files are kept. You'll learn more about the contents of the S/ and T/ directories when I cover the EXECUTE command in detail.

If you don't use the Calculator or Notepad, the Utilities/ directory may be deleted. Several files in the System/ directory are rarely used and may be deleted. At least, DiskCopy and Format should stay.

The fonts/ directory contains all of the system screen fonts. You'll probably want to keep all of these. Indeed, you may want to add to them. The subdirectories under fonts/ contain the point sizes, indicated by the name of the file. The Expansion/ directory works with the BindDrivers command for expansion devices. The Empty/ directory is provided as an additional directory for your own use. Both may be deleted if they're not used.

The ROOT directory contains a number of files that may be eliminated. If you never intend to use the Workbench, any of the ".info" files may be removed. If you don't change your preferences often, that utility may be deleted as well.

Custom Environments

When the computer is first booted, several things about this environment are defined by the "startup-sequence" file located in the s/ directory. Script files (otherwise known as command execution files) contain a list of commands and instructions that AmigaDOS reads and

(continued)

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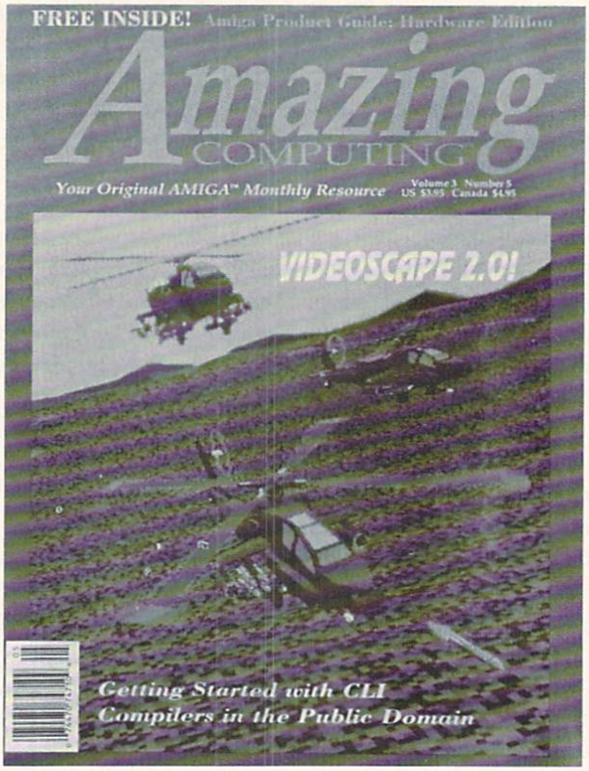
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executes as if they were typed in at the keyboard. This allows for some very powerful manipulation and customizing of the operating environment. The startup-sequence is unique in that the Amiga will execute instructions from it every time the system is booted. This conveniently allows you to set various parameters and execute different programs to alter the environment to suit your needs.

There is nothing special about a script file. It's simply a standard ASCII file, containing a command on each line, is to be executed in sequence. A text editor may be used to create a script file.

You have seen that when a file name is entered followed by RETURN, AmigaDOS will attempt to execute a file by that name. The system looks in the current directory, then in the command directory to find the file. If it's not found in either directory the "unknown command" message is returned. The command PATH may be used to define other directories to search for a program by that name. The default startup does this for the System and Utilities directories.

On floppy disk based systems, this is not very significant, since you normally have to mount the proper disk before you can use it anyway. On hard disk systems, it almost becomes a necessity. Follow the same format to add a path for your favorite programs. Let's look at the startup-sequence file contents and modify it to leave the startup CLI window open.

Using a backup of your Workbench disk, enter the following command:

```
1> ED s/startup-sequence
```

If you want to add to the file, enter the command complete with parameters, exactly as you would at the CLI prompt. Separate each command with a carriage return. It's a good idea to provide the complete path to insure the program will be found. Bear in mind, many programs execute as a type of sub-process of the current CLI and as such prevent the parent CLI from ending until that program ends. A public domain command called RunBackground helps to eliminate this problem by running programs as a detached process.

Notice the line that says "endcli > nil:". This command ends the original CLI and sends the message "CLI task 1 ending" to the NIL: device (the proverbial "Bit Bucket"). The NIL: device does absolutely nothing, so this has the effect of suppressing the message. You can either delete this line or, in the programmer's language, comment it out. To perform the latter, place a semicolon (;) in the first column of the line. This will leave a console window open and eliminate the need to go through the Workbench selection procedure to open one.

Next issue we'll look at batch processing and how to apply it using the startup-sequence—including some specifics for hard disk owners.

•AC•

AMAZING REVIEWS

Doug's Math Aquarium

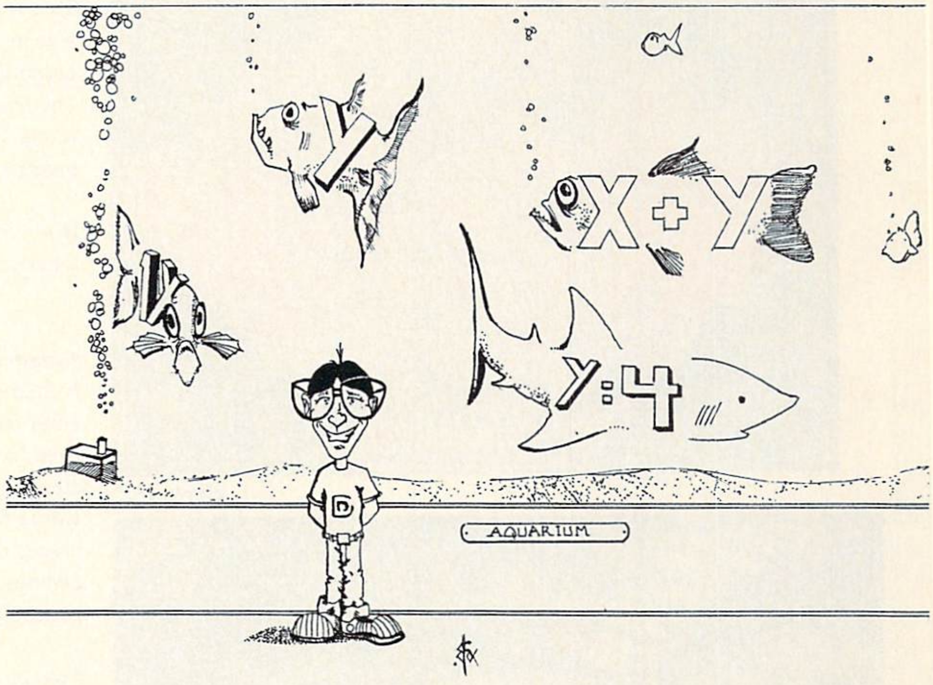
The Art of Mathematics

by Richie Bielak

Every now and then a program is written that uses the computer in a way no one has before. Sometimes such programs have far-ranging effects—remember VisiCalc?—and sometimes they don't. In either case, it is exciting to see the embodiment of a new idea. Doug's Math Aquarium belongs to the class of such programs.

Simply put, Doug's Math Aquarium (DMA) allows you to turn equations into pictures. You can draw three different types of pictures: simple two dimensional graphs, 3-D wire frame plots and contour maps. The ability to draw the contour maps is the distinguishing feature of this program. As you will see, pictures produced by DMA can be breathtaking! It is hard to believe that such beauty is buried in seemingly boring equations.

But before we submerge deeper into Doug's Aquarium, let's review some math to make our stay more pleasant!



A Little Bit of Math

As you may remember from high school algebra, any point on a plane can be described by a pair of numbers. These numbers denote the point's distance from two perpendicular axes and are written as "(x,y)"—the point's coordinates. In fact, this method of addressing points on the plane is used to refer to pixels on the Amiga screen.

To describe a curve in the plane, one can use a formula of x's and y's such that any point on the curve has coordinates which also satisfy the formula. For example, the equation $x*x + y*y = 1$ describes a circle with radius of 1 and the center at (0,0). The point (-1,0) must lie on the circle since its coordinates satisfy the equation, as $(-1)*(-1) + 0*0 = 1$. This result can be checked by drawing a picture.

By adding a third coordinate, "z," we move from two to three dimensions. Every point in three dimensional space is described by three coordinates: (x,y,z). Furthermore, a formula which uses three variables describes a surface imbedded in three dimensional space. We can extend the equation of the circle to three dimensions like so: $x*x + y*y + z*z = 1$. This new equation describes the surface of a sphere with radius one and center at (0,0,0). The reader can easily verify that the point (1,0,0) lies on the surface of the sphere.

(continued)

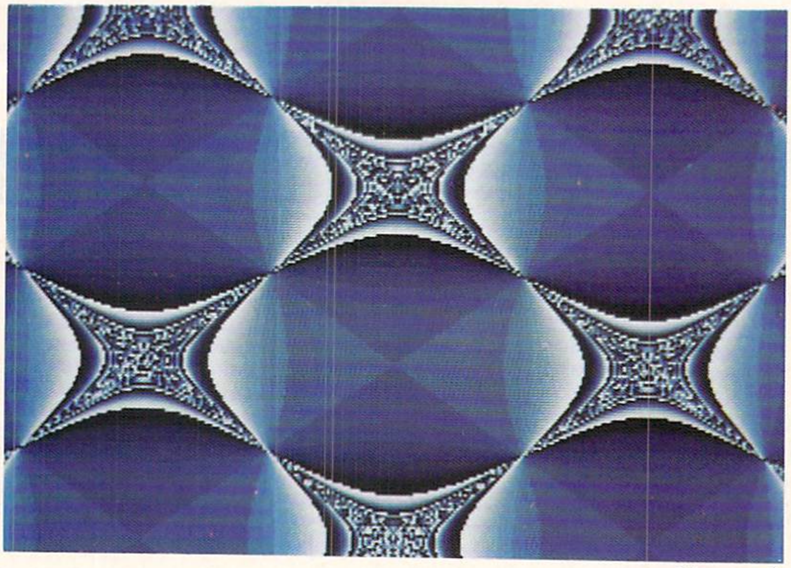


Figure 1

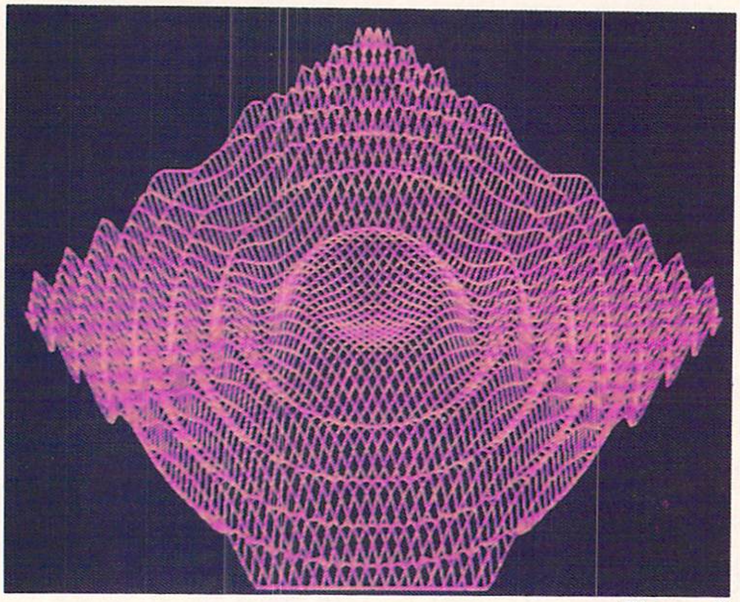


Figure 2

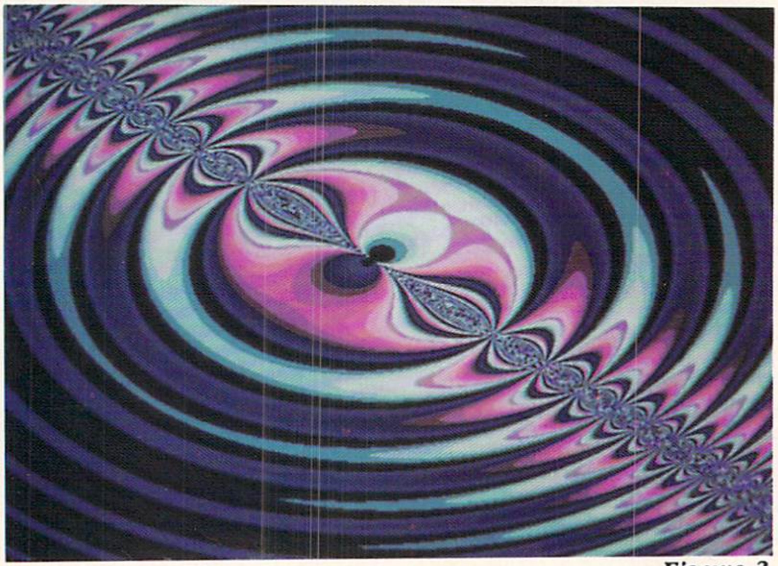


Figure 3

Although in the above examples we wrote all the variables (i.e. x, y, and z) on one side of the equation, usually one variable is expressed in terms of the others. In two dimensions, we write "y" in terms of "x," and in three dimensions, "z" in terms of "x" and "y." So, the equation of the circle can be written as:

`y = +SQRT(1 - x*x) and y = -SQRT(1 - x*x)`

This way we can write formulas for curves with one variable, and formulas for surfaces with two.

Back to Doug's Aquarium

DMA allows you to enter formulas with one or two variables; then it draws the corresponding picture. Three kinds of pictures can be drawn. If only one variable is used, then the plot will be a two-dimensional curve. If the formula uses two variables, the plot can be a 3-D wire frame drawing, or a color contour map of the surface seen from above.

Two screens comprise DMA's user interface. The first screen, called The Numerical Swamp, is used for entering formulas, functions and numeric parameters. The second screen is used to display pictures only. Both screens share the same menu, although most of the menu items apply to the display screen.

Now let's trudge through Numerical Swamp and see what sort of creatures live there!

Numerical Swamp

Numerical Swamp is a screen filled with gadgets used to enter formulas and related parameters. Six gadgets are used to specify the minimum and maximum values of all coordinates. By default, the minimum and maximum values for "x," "y," and "z" are set to -10 and 10. These values can be modified directly while you are in the Swamp, or indirectly when you are zooming around the picture (more on zooming later).

Two gadgets specify the "x" and "z" coordinates of the viewpoint for the 3-D wire frame pictures. I prefer to pick the viewpoint using the Viewpoint item on the Switches menu. That option graphically displays the viewpoint, which makes the whole task much easier.

The most important portion of the Numerical Swamp consists of five gadgets used for entering formulas and functions. The first gadget, labeled "Val," is where the final formula of x's and y's is entered. The value of the formula computed for x's and y's lying within the specified bounds determines the "z" coordinate.

Many interesting pictures can be produced by just entering formulas into the Val gadget. DMA provides a large number of built-in functions that can be used to build up more complex formulas. For example, all the trigonometric functions are present (i.e., sin, cos, tan, etc.). Other more unusual functions included are: RND (returns a random number between 0 and 1); FRAC (returns the fractional portion of its argument); and XOR (returns the bit pattern obtained by exclusive OR-ing its arguments).

User Functions

In addition to the built-in functions, the user can define his own functions. The gadgets FA through FD are used for this purpose. Since only four gadgets exist, only four user functions can be set up for any picture. However, this does not seem to be a limitation. Even with a single user function, one can build very complicated formulas.

Let's consider an example. Suppose we defined a function like this:

FA: (a1 - a2)/(a1 + a2)

In DMA's syntax, "a1" and "a2" denote the first and second arguments of the function. Now, we can use this function in the Val line:

VAL: fa2(cos(x), sin(y))

Again, in DMA's syntax the above line means that we are using the function FA, with two arguments (that's why the "2" follows the function name). To figure out what the actual formula, in terms of x's and y's would be, we have to plug in "cos(x)" for "a1" and "sin(y)" for "a2." We obtain this:

(cos(x) - sin(y)) / (cos(x) + sin(y))

We can use the same function with different arguments:

VAL: fa2(2*x,cos(x))*fa2(1/x,1/y)

In this case, the effective formula will be:

((2*x - cos(x))/(2*x + cos(x))*((1/x - 1/y)/(1/x + 1/y))

As you can see, complicated formulas can be built easily with user functions.

If-Then and Recursion

A very powerful feature that can be used when defining formulas is the "if-then" construct. Consider a simple example:

VAL: x > y ? x + y : x*y

The above formula says, when "x" is bigger than "y" the value of the formula is "x + y"; otherwise the value is "x*y."

The syntax for the "if" is borrowed from the C language. In general, the syntax for the "if" can be written as:

<boolean expression> ? <do this if true> : <do this if false>

The portion preceding "?" is a boolean expression (i.e., a test, whose value will be true or false). The two expressions that follow specify what to do if the test turned out to be true or false.

Combining user functions and the "if" allows construction of recursive formulas. A recursive function is defined in terms of itself. To see how this is done, let's consider the factorial function. This function is defined, for "n" bigger than zero, as

Fact (n) = n*(n - 1)*(n - 2)*...*2*1

and for "n" equal to zero we have

Fact(0) = 1.

So, Fact(4) = 4*3*2*1 = 24. Moreover, note that

Fact (n - 1) = (n - 1)*(n - 2)*...*2*1

Therefore, we can express Fact(n) in terms of Fact(n - 1) like this:

Fact (n) = n*Fact (n - 1) for n > 0

and Fact (0) = 1

The above formula is an example of a recursive definition.

From a computational point of view, recursion is just a special kind of looping. To see this, let's see how the factorial function is defined and evaluated by DMA. Here is the DMA formula:

FA: a1 > 0 ? a1*fa1(a1 - 1) : 1

Note how this formula mirrors the formal definition of the factorial function. Now let's see how "fa1(4)" (i.e., Fact (4)) is computed. To obtain "fa1(4)," we must compute "fa1(3)" first. After "fa1(3)" is computed we multiply the result by "4" to get the final answer. The diagram below illustrates the whole computation:

```
fa1(4) = 4*fa1(3)
            I
            V
         fa1(3) = 3*fa1(2)
                     I
                     V
                  fa1(2) = 2*fa1(1)
                              I
                              V
                           1*fa1(0)
                              I
                              V
                              1
```

so, we get

fa1(4) := 4*3*2*1 = 24

The power of recursion is shown by the fact that a recursive formula can be used to make a picture of the Mandelbrot set.

Plot Screen

Now that we have survived the trip through the Numerical Swamp, let's take a look at the options available on the Plot Screen where all pictures are drawn. Three of the five DMA menus are used for controlling the display: Plot, Actions, and Switches menus.

The Plot menu allows you to select the type of picture to draw a wire-frame plot or a contour map. Selecting an item from this menu starts drawing.

The Actions menu provides options for manipulating the current picture. For example, the center of the displayed

(continued)

picture can be shifted or a range for "z" can be chosen to produce a more colorful picture. However, the Zoom In and Zoom Out items from this menu are used more frequently.

The Zoom In option allows magnification and closer examination of the picture. To Zoom In, a rectangle is drawn (using the mouse) enclosing the region to be enlarged. The selected piece is then drawn to cover the entire screen. Since the rectangle need not have the same aspect ratio (i.e., the ratio of width to height) as the screen, the new picture represents a stretched or shrunken piece of the original. When zoomed into, many functions reveal a surprising level of detail.

As you can guess, Zoom Out is the opposite of Zoom In. The picture is enlarged—the original becomes a small chunk of the new drawing. Zooming out is less flexible than zooming in. This is understandable—you cannot draw a rectangle larger than the screen. To zoom out, you just choose a factor by which to enlarge the entire picture. The choices are 2x, 4x, or 10x.

The amount of zooming you can perform in either direction is limited by the precision of the calculations. Since the precision is finite, the picture will eventually become fuzzy and further detail will not be revealed. But for the armchair mathematician, the available resolution is just fine.

Finally, the Switches menu controls other display parameters. For example, the resolution of the picture is chosen from this menu, screens of 320x200, 320x400, 640x200 and 640x400 can be used. The requester to change screen colors is activated from this menu. It should be noted, however, that DMA uses an unusual color requester. There are sliders for each color (either 32 or 16 sliders), and each slider is used to specify the amount of Red, Green or Blue in each color (the HSV values can also be used).

A sub-menu is provided for controlling the 3-D wire frame plots. Options present include perspective drawing and hidden line removal. Another sub-item allows the choice of the viewpoint from which the surface will be shown.

An option which controls both wireframes and contour maps is the Sampling Rate. Sampling Rate specifies in how many places on the screen the function will be computed (i.e. sampled). At the highest sampling rate, the function is evaluated at every pixel. At a lower rate, the function is evaluated in fewer places on a grid covering the screen.

The sampling rate has different effects on the two types of drawings. For wireframe pictures, a lower rate is better as it allows for more spacing between the wires. More precisely, in wire frame drawing the points at which the function is evaluated are connected via straight lines. If there is more space between the evaluation points (i.e., lower sampling rate), the line segments show better.

On the other hand, for contour maps, a low sampling rate results in pictures consisting of large squares of color. Much better pictures are made with a high sampling rate. Unfortunately, high sampling rate means more computation and therefore more time for pictures to appear. The usual compromise is to use a low sampling rate while looking for an interesting spot, and then turn sampling up high to make the final picture.

Other options on the Switches menu control color assignments in contour maps, allow overplotting of pictures, and select the dimension for wire-frames. (Choices are 2, 3, or 13 dimensions ... yes, 13! But I won't divulge the secret.)

Now that we've examined the Plot Screen in detail, let's look at some examples.

Examples

In Figure 1, you can see our first example. It is a wire-frame drawing of the function 12*sin(x^2 + y^2). The "^" denotes exponentiation in DMA syntax. Both "x" and "y" coordinates were between 5 and -5, and the "z" was selected to be between 2 and -2. The drawing was done on a 640x400 screen (interlace) and the sampling rate was moderately high (but not maximum).

The second example (see Fig. 2) shows a contour map of a function. The formula used in this example was constructed with the following user functions:

```
FA: (a1 - a2)/(a1 + a2)
```

The actual formula used was this:

```
fa2(cos(y), sin(x))
```

The range of all coordinates was from 5 to -5. The picture was drawn on a low-res screen with the sampling rate set at maximum.

The final example (Figure 3) is also a contour map. The function used was:

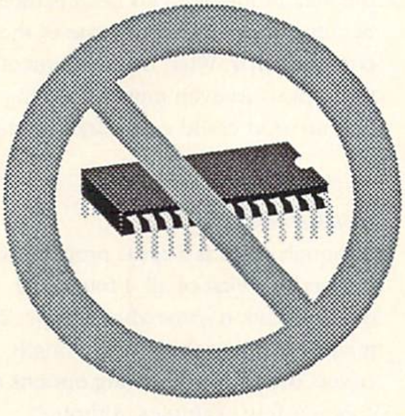
```
10*sin (x^2 + y^2) / (x + y)
```

The "z" coordinate was restricted to the range 1 through -1. The "x" and "y" coordinates were chosen by zooming in on the center of the picture (0,0). The drawing was done on hi-res interlace and a maximum sampling rate.

A number of interesting principles are illustrated by the above examples. For instance, the expression "x^2 + y^2" was used in two formulas. Recall from our previous discussion, that this formula describes a circle. Now both of the pictures in Figures 2 and 4 contain circular objects. That's how the formula for the circle makes its presence known.

The second and the third examples use division. In the last example, we divided by "(x + y)." Since "x" and "y" vary through positive and negative values, the sum "x + y" will occasionally be equal to zero. Now division is not possible. However, sometimes division by zero is said to give infinity. This is because as we divide a fixed non-zero quantity by numbers closer and closer to zero, the answer becomes increasingly larger (try this on your calculator).

(continued on page 76)



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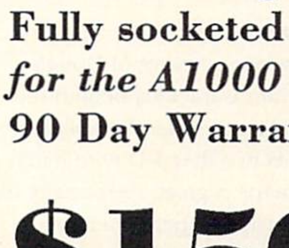

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Now, as division by quantities closer to zero is performed, the value of the function increases very fast. In the contour maps, the colors are assigned based on the current value of the function. The colors will change faster when the function changes fast. Therefore, the areas of the pictures that have many colors mixed together are the areas where the function changes rapidly.

In the last example, such an area exists along the diagonal going from the upper left-hand corner to the lower right-hand corner. As it turns out, the equation of the diagonal line that starts in the upper left-hand corner is $y = -x$. After rewriting this equation, we get $x + y = 0$. Notice, that "$x + y$" is precisely the quantity we used in the division!

The reader is encouraged to figure out which quantity is used in division in the second example, and how this explains the appearance of the picture.

Strong Points

I think the strongest point of Doug's Math Aquarium is the idea behind the program. Giving the user the ability to see equations in either 3-D wire frame or in contour maps is great. I especially like the contour maps. I spent many hours playing with different functions trying to get certain kinds of pictures.

After spending some time with DMA, one develops a feeling for the relationship between formulas and pictures. This type of visual intuition is very important in doing mathematics. In fact, mathematical thinking is very visual and picture-oriented. Non-mathematicians may find this very surprising, as math is usually taught in a very abstract, dry, non-visual manner. However, mathematics was not invented in such a boring way, but by someone who started drawing doodles.

Another surprising characteristic of the pictures produced with DMA is their beauty. This is especially true of the contour maps. What makes some of these pictures even more appealing is that no artist could ever conceive them.

Weak Points

Although DMA is a great program, it is not perfect. First of all, I found the documentation somewhat skimpy. The manual is rather thin. It very briefly covers the various drawing options and contains few examples. Although adequate in describing the program the manual could be greatly improved. I think adding a tutorial and many more examples would be welcomed.

I also did not like the syntax for user functions. What I disliked most was the need to have the number of arguments in the name of the function. For example, a function with two arguments must be called "fa2." I believe that the expression compiler used by DMA could have been made smarter and could have kept track of the number of parameters.

Finally, the file requester used by DMA is not up to the Amiga standard. For example, one has to enter a complete file name and click on the OK gadget before the contents of the disk is displayed. This makes it harder to look for files whose names one can't remember. Furthermore, I hanged the Amiga a few times while trying to deal with the file requester.

Summary

Overall, Doug's Math Aquarium is an excellent program. Anyone who is studying mathematics (in high school, college, or graduate school) should get a copy of DMA. It can be a lot of help in understanding and visualizing math.

Even if you are not studying math, you might enjoy playing with Doug's Math Aquarium. You will be able to further explore the graphic plotting power of the Amiga and see the beauty in math.

•AC•

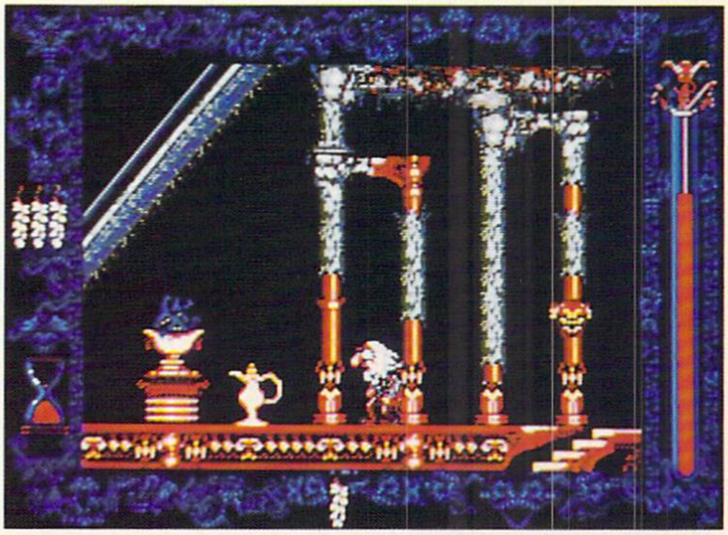
Hot on the Shelves

by Michael T. Cabral

Show Off!
New products and trade shows are joined at the hip. Without new products, trade shows would be nothing more than sleepy lecture series. Without trade shows, new products would be tossed out into the cruel world of *real* PR work. Far be it from me to break up a happy couple, so here's a look at some upcoming shows.

Look out, Boston! The Golden Gate is on its way east. Not the bridge, the trade show group. The **Amiga-Commodore Users Computer Show**, presented by Golden Gate Shows, will be held at the Bayside Expo Center in Boston on September 10 - 11. The hall will be open 10 a.m. - 8 p.m. on Saturday and 10 - 5 on Sunday. For more information, dial (800) 344-3773 or (415) 388-8893, or write to: Golden Gate Shows, P.O. Box 767, Larkspur, CA 94939.

For the first time, the **World of Commodore Show** will make two appearances in the same year. The Commodore-sponsored event usually stops only in Canada, but this year will park in Philly a month earlier. The Philadelphia Civic Center hosts the show November 3 - 6. Toronto sets a familiar stage for the the frigid Commodore fest December 1 - 4 at the International Convention Center. For more information, call (416) 595-5906 or write to: The Hunter Group, 204 Richmond Street West, Toronto, Ontario, Canada M5V 1V6.

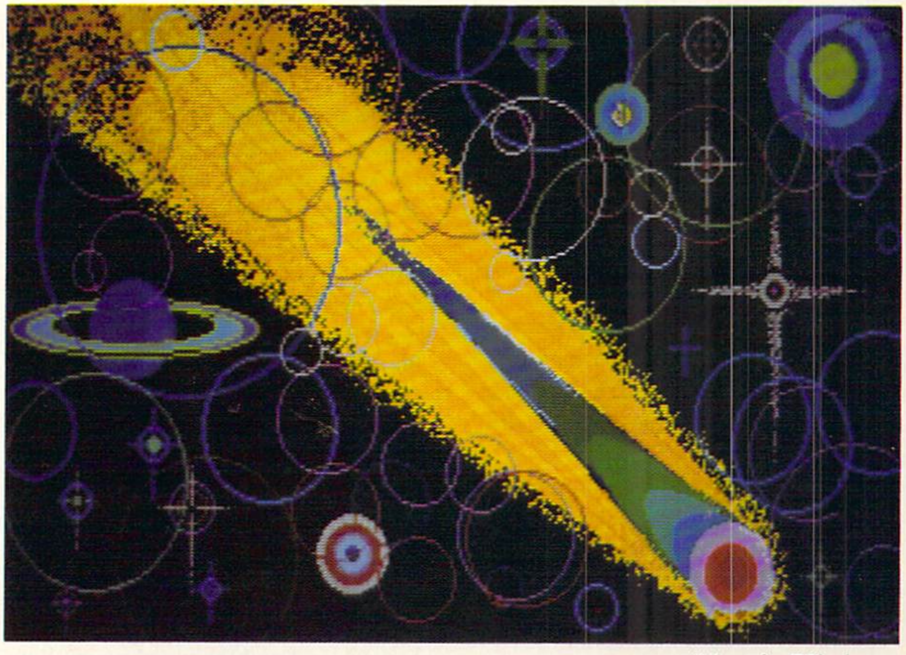


Vampire's Empire

Anyway, on to this month's newest and hottest ...

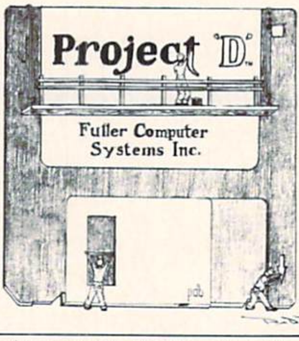
Music To Your Eyes
The 80's have taught us that music and video were made for each other. But now, instead of switching on MTV, you can click on your Amiga for great video music. **Music Visions,** by Digital Wizards, Inc., lets your imagination run wild as you create your own dizzying fusion of sight and sound.

Music Visions turns any lo-res IFF image you create into a retina-wowing light show. Your image pulsates, flashes, and cycles colors to the tune of any FutureSound or Perfect Sound music sample. Just create your image with a drawing program, pop it into Music Visions, and "see" what your favorite music sounds like.



Music Visions

INTRODUCING.....



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You're not just a spectator, either. The program gives you full control of the video music production. You can rotate and cycle sets of colors according to frequency ranges, cycle background colors, and choose the direction and speed of all cycling. Add new colors with a color palette and save your new, color overhauled image. With a volume threshold setting, you tell the colors when to kick in and a decay rate adjustment lets you control downward color transitions.

You can really grab the producer's spot by dictating whether Music Visions analyzes the digitized music in three, six, or twelve frequency ranges. You've also got three color display modes at your disposal, if you opt against letting the program randomly freewheel the colors. With video music capabilities like these, who needs MTV?

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Blood Bank Robbery

Tales of blood-slurping vampires are as old as the late, late, late show itself. These dingy yarns may have stood some hair on end at one time, but now they have drooped to the ranks of video Sominex. Fans of the caped Count need not worry, though. **Vampire's Empire** by DigiTek, Inc. has resurrected Count Dracula with some irrepressible Transylvanian vim and vigor, and an insatiable thirst for you-know-what.

You hop into the shoes of the hook-nosed, karate-kicking Dr. Van Helsing, vampire zapper extraordinaire. It's your job to sniff out Dracula, the head honcho, and end the blood binge. Your hunt won't be easy. The Count's underground lair is made up of over 240 screens that lead you in circles. Just when you think you're getting somewhere, a trap door swallows you up or a tumble down a flight of stairs changes your viewpoint.

Don't expect to pace the halls in peace. In addition to the Count, scads of other nasties squash your hopes of keeping some blood running through your veins. Huge, lazy eyeballs watch your every move. As you scamper past coffins scattered throughout the lair, you awaken grumpy apprentice vampires and, even worse, seductive blond vamps. This place certainly isn't made out of ordinary two-by-fours, either. Hideous faces and creatures camouflaged in the walls and beams wait to lash out, spit at you, or gnaw your bones if you lean back to catch your breath.

You may be outnumbered in the Count's backyard, but you're not unarmed--you've got some classic "vampire-be-gones" in your bag of tricks. Garlic temporarily staves off vampires, and mirrors and a magic ball help you redirect the light that can send Count Dracula and his clan to their coffins for good. With the right moves, you can choke the Count on the very blood he's slurping from your test tube.

Vampire's Empire
$44.95
DigiTek, Inc.
10415 N. Florida Ave., Suite 410
Tampa, FL 33612

Climb Your Family Tree

If you're fascinated by genealogy, but have trouble with second cousins twice-removed and great-great aunts, **Your Family Tree** by MicroMaster, Inc. may be for you. This friendly database uses organized graphic screens, pull down menus, and both mouse and key commands to make tracking your clan a snap.

Think your tribe is too large and diverse for this program? Think again. Depending upon available memory, Your Family Tree can support up to a whopping 65,534 family members! Each member can have up to eight spouses and forty children. And don't worry about long names—the program accepts names up to forty characters long.

All records are indexed and tagged with reference numbers for your use, and speed up searches and compilation of reports. First, middle, and last names are stored, along with family titles (Jr., Sr., etc.), sex, and parents' names. Also noted are the date and place of the birth, christening, marriage, and death of a family member. A 4000-character free-form memo for each person lets you slip in any unusual facts, irritating quirks, or other family notes and quotes.

Want to print out a checklist for the next family reunion? Your Family Tree can crank out a standard, "tree format" Pedigree Chart with names and important dates, a Family Group Record with memos, an Individual Group Record, an indented Descendant Chart, or an Alphabetized List.

MicroMaster, Inc. recommends a hard drive or at least two floppies to get the most out of Your Family Tree. Tech support is available by phone or BBS—a nice family touch.

Your Family Tree
$49.95
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(412) 775-3000

Flex Your Amiga
Despite all its graphic power and multitasking flair, the Amiga has been an outsider in our computer-intensive working world. Simply put, there's just been no way to connect the Amiga to high level experimentation and lab work. Until now. **Twin-X,** a general purpose I/O board for the Amiga 2000 designed by ASDG, Inc. fills the void by moving the Amiga into cozy realm of the IEEE 959 interface standard.

The IEEE 959 standard has been around for some time, so many modules are available, including products from companies like Intel Corporation, Douglas Electronics, Inc. and Monolithic Systems. The modules cover categories that open countless new doors for Amiga users. Bar code readers, optical scanners, bubble memory modules, IEEE 488 (GPIB) controllers and other interests are now all parts of the Amiga repertoire.

On the Amiga side of things, Twin-X is a standard Zorro II expansion card with full auto-configuring. It can host any two standard modules or a single double-wide IEEE 959 module. An autoconfiguring interface for Twin-X modules allows modules to auto-configure under Kickstart from update 1.2 on up.

ASDG has announced plans for five IEEE 959 modules of its own to meet Amiga-specific demands. SCSI and MC68881/MC 68882 Floating Point modules are targeted at general applications, and an IEEE 488 (GPIB) module is aimed at the process control and data acquisition arena. Both dual and quad RS-232 modules are also in the works. ASDG plans to continue meeting specific needs as they arise. With these new modules, and the many already available, Amiga expansion is limitless.

Twin-X
ASDG, Inc.
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A Chip For Your Amiga's Shoulder
The **ZR2** chip by ALX Digital is out to prove to the electronics market that the best things really do come in small

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PERFECT SOUND TOO!

Oops... CORRECTIONS!

The Hardware Edition of our Amiga Buyer's Guide in AC V3.5 was marred by a few errors, as follows:

• Please note the address & price changes for Compplications (page 73):
X-10 Powerhouse System $55; software only, $22
Allows the Amiga to control lights and small appliances through your house wiring.
Compplications, 1727 Parkview, Redlands, CA 92374 (714) 794-5311

• The price of the PFD-135 3.5" External Disk Drive by Phoenix Electronics (page 72) was garbled. The entry should have read:
The PFD-135 $229
3.5" 880K external floppy drive for all Amigas, featuring low power drive with pass-through.
Phoenix Electronics, Inc., P. O. Box 156, Clay Center, KS 67432, (913) 632-2159

• Micron Technology has informed us that the description of the Amiga 2000 Memory Expansion Board (page 60) has changed since the product information was submitted to AC. The entry should now read:
Amiga 2000 Memory Expansion Board (call for pricing)
1MB and 2MB memory boards presently available.
Micron Technology, Inc., 2805 E. Columbia Rd., Boise, ID 83706
(800) MICRON-1; (208) 386-3800

• A general note on RAM: As all you hardware hackers know, RAM prices change like the weather. Although we've listed some RAM prices, please call all manufacturers for current pricing.

We apologize for any inconvenience caused by our errors, and encourage you to let us know about any inaccurate or missing information.

---

packages. This tidy 40-pin package packs the punch of twelve diverse functions and replaces much of the convoluted circuitry needed for electronics projects. When interfaced with your Amiga, the ZR2 can simplify a wide range of applications.

The ZR2's twelve functions cover a wild spectrum. For everyday use, the ZR2 includes both AC and DC light dimmers. Four chasers/zoners with sixteen channel outputs cover lighting display applications, ranging all the way from Christmas bulbs to nightclub strobes. A serial encoder/decoder allows you to transmit and receive entire sequences of data through a single line. In effect, you can create your own modem and serial transmission system! As you can see, the key here is diversity. A 64-channel controller is also included, along with a 16-channel direct-mode controller and a pulse counter that tracks people, sounds, light, electronic pulses—you name it. The ZR2 is software compatible, requires only +5 volts and a 4MHz crystal, and is a snap to interface to your Amiga. If you need more than one of these little guys, a matrix routine lets you interconnect hundreds of ZR2's and run each independently.

If electronic freedom is your goal, introduce your Amiga to the ZR2.

ZR2
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ALX Digital
12265 S. Dixie Highway, Suite 922
Miami, FL 33156

Also New & Notable

• TDI Software, Inc. recently released version 3.01A of its **Modula-2** system. The new release uses IEEE 64-bit format to implement LONGREAL type, strips all data restrictions, and replaces the M2 error program with a full screen editor. Compilation speed is up a blazing 33 percent, and new compiler options include underscoring, control of case sensitivity, and batch compilation. Also keep an eye out for a **single-pass Modula-2 compiler** from TDI as summer fades to autumn.

Modula-2
TDI Software, Inc.
10355 Brockwood Rd.
Dallas, TX 75238
(214) 340-4942

• If you can't beat 'em, join 'em. The expression may be worn out, but the concept is hot in the Amiga market. The latest entry, the **Critic's Choice Productivity Bundle**, lets you dabble in word processing, databasing, and spreadsheet work. Just married are the Disc Company's Kind Words, Oxxi's Maxiplan 500, and Software Visions' Microfiche Filer.

Kind Words offers a mouthful of word processing features, including the ability to insert color graphics in text, mail merge, many type styles and sizes, and a series of proprietary hi-res printer drivers. The amiable Maxiplan 500 spreadsheet allows you to format the color, type, style, and sound of cells and ranges and use spoken cell notes for input directions, calculation, and analytical results. Microfiche Filer shrinks database input into a 2-D "film" of text and imported graphics and supplies you with a "magnifying glass" for your searching pleasure.

Critic's Choice Productivity Bundle
$249
The Disc Company
3135 South State St.
Ann Arbor, MI 48108
(313) 665-5540

— Michael T. Cabral

by John Steiner

Bug Bytes

The Bugs & Upgrades Column

Ron Troy, (CompuServe number 76074,252), and a couple of other readers, sent a note regarding **Jet**. In V3.5, I reported several bug fixes in an upgrade from Jet version 1.0 to 1.01. Ron reports removal of analog joystick support in version 1.01. SubLOGIC commented that there are no Amiga analog joysticks available, so support is not necessary.

Ron also noted that SubLOGIC provides specifications for modifying Apple-and IBM-style analog joysticks for the Amiga. SubLOGIC Customer Service also reports a true "built for Amiga" analog joystick.

Keith Doyle of The Right Answers Group also contacted me regarding the report of a bug in **The Director**. The bug report stated that some single letter variables do not work.

According to Keith, variable names are case-sensitive, so lower case variables are kept separate from upper case variables. Keith guessed that the user reporting the bug used a lower case single letter variable somewhere in his Director script, and somewhere else an upper case variable. This discrepancy prevented the animation from compiling correctly. When the user decided he could not use single letter variable names, he switched to multiple letter variable names and typed them all in the same case, causing the animation to work properly. In any case, single letter variable names work just fine in The Director.

If you have any other questions relating to this or other problems, contact Keith Doyle directly at: The Right Answers Group, Box 3699, Torrance, CA 90510, (213) 325-1311.

Pete Brochu, People Link OPS421, reports a bug in Infinity Software's **Shakespeare**. When you save a Shakespeare issue (page or pages), it saves all font information. However, when you reload the issue, Shakespeare does not allow you to reload any additional fonts and the program freezes.

According to Pete at Infinity Software, this is a confirmed bug. Infinity promises an upgrade by the time you read this. Call Infinity Software for Shakespeare upgrade details:
Infinity Software, Inc., 1144 66th St., Suite C, Emeryville, CA 94608, (415) 420-1551.

NewTek announced an upgrade to **Digi-View 3.0**. Major improvements include halfbrite support and the addition of overscan mode to let you display pictures on your TV with no border. For upgrade information (unavailable as of this writing), call NewTek at:

NewTek, Inc., (800) 843-8934.

A notice posted on several networks by a HyperTek/Silicon Springs representative reports a duplicating error in **GOMF 2.1**. Approximately 800 disks accidentally shipped with a beta version of 2.1. The defective version causes a problem after being used to recover a "Task Held" error. GOMF 2.1 kills the errant task, but the machine crashes shortly afterward.

Hypertek/Silicon Springs apologizes for the error, and encourages all GOMF 2.0 and 2.1 owners to send their original disks for a free update to GOMF 2.2. GOMF 2.0 does not have the problem, but version 2.2 offers better operation, and free upgrades are available from either 2.0 or 2.1. Send your disk to:

Hypertek/Silicon Springs, Suite 205 -
2571 Shaughnessy Port, Coquitlam, BC,
Canada V3C 3G3, (604) 942-4577.

James Bayless of New Horizons software in Austin, TX has announced **ProWrite 2.0**. Several enhancements improve the general operating characteristics, including Workbench 1.3 printer drivers.

Owners of ProWrite 1.x can upgrade to ProWrite 2.0 by sending the master disk (and registration card, if you haven't sent it already) to New Horizons, along with a check for $20 and a note requesting the new version. If you purchased the program after January, 1988, the upgrade costs $10.00 and will be sent to you within two days.

New Horizons Software, Box 43167,
Austin, TX 78745, (512) 328-6650.

Registered owners of **VideoScape 3D** should already have received notices from Aegis Development announcing an upgrade to VideoScape 2.0. It has several new features. Among many new capabilities, VideoScape 2.0 includes

(continued)

HAM support, halfbrite support, severe overscan, and much smaller ANIM files (better compression).

If you are not a registered owner, send in your registration card. The upgrade to version 2.0 from version 1.x costs $30.00.

An April 8, 1988 news release reports an update to **Aegis Videotitler**. According to the release, Aegis Development Inc. is now shipping version 1.1 of Aegis VideoTitler, its presentation graphics and titling software. The update fixes known bugs and includes many new features, most of them suggested by users. An eight-page addendum to the manual is also included.

New features have also been added to the VideoSEG Special Effects Generator module included with VideoTitler. Added features include a sleep mode that allows multitasking between VideoTitler and VideoSEG, 3D perspective paste, submenu markers and pop-up menu support, grab spots for adjusting poly fonts, and foreign keyboard support.

The upgrade to VideoSEG includes 27 new transitions, including scrolling, a new frame specs requester for easier script editing, scrolling ANIM files, the ability to position large pictures, and SuperGen genlock support.

Registered owners can send their master VideoTitler program disk to Aegis for a free update. Aegis will send a new master VideoTitler 1.1 program disk if you send a check for $10.00 and your registration number. For upgrades to either VideoScape or VideoTitler, contact:

Aegis Development, 2210 Wilshire Blvd.,
Suite 277, Santa Monica, CA 90403, 800-345-9871.

Chuck Keller sent me a copy of a letter he received from Electronic Arts that was mailed to registered owners of several older Amiga game packages. The letter deals with the conversion of programs to run under Kickstart/Workbench 1.2. According to the undated letter, "Electronic Arts recently made a decision not to upgrade three of its Amiga products to run on Kickstart 1.2. These three products are **The Seven Cities of Gold, Archon** and **Archon II: Adept**."

The letter offers to replace any of these packages with a version 1.2 copy of another program of the customer's choice from a list including Dr. J & Larry Bird Go One-on-One, Financial Cookbook, Adventure Construction Set and Skyfox.

For a free upgrade, customers who purchased the original 1.1 versions, and are still covered by the 90-day warranty can send the disk, along with dated proof of purchase to:

Electronic Arts, Customer Warranty
Department, 1820 Gateway Drive, San
Mateo, CA 94404, (415) 572-9560.

Upgrades for software purchased prior to the 90-day warranty period must include a check for $7.50 to cover shipping and handling. Send it to: Electronic Arts, P.O. Box 7530, San Mateo, CA 94403-7530, (800) 245-4525.

Progressive Peripherals and Software announced an upgrade to **IntroCAD**. Version 2.0 fixes several bugs regarding printer support. The PrtDef files are now transparent to users, but allow more printers and higher resolution. Problems with Snap to Drawing functions are also fixed. New features include a Thickline feature, single-level gray scale for black-and-white printers, and angle degree display for Show XY and Rotate/Variable options. A list of over 20 improvements is included in the disk-based documentation. The upgrade costs $10.00 and is available from Progressive Peripherals directly.

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attn: Upgrade Department, 464 Kalamath
Street, Denver, CO 80204, (303) 825-4144

Mindware International has improved its **Pageflipper** animation generator in a new version called Pageflipper Plus F/X. The new version includes several features not in the original Pageflipper. Registered Pageflipper owners can purchase the new version for $50.00. For complete upgrade details, contact the developers at:

Mindware International, 110 Dunlop W.,
Box 22158, Barrie, Ont., Canada L4M
5R3, (705) 737-5998.

A note to software developers: I try to follow up on all bug reports and upgrade notices. Unfortunately, I cannot verify them all. Why not put my name on your mailing list to be notified of upgrades and bug fixes? In this way, I will be sure to get the information directly from the source and can pass it on to your unregistered users quickly and error-free.

That's all for this month. If you have any workarounds or bugs to report, or if you know of any upgrades to commercial software, notify me by writing to:

John Steiner, c/o Amazing Computing,
Box 869, Fall River, MA 02722

...or leave EMail to Publisher on People Link or 73075,1735 on CompuServe

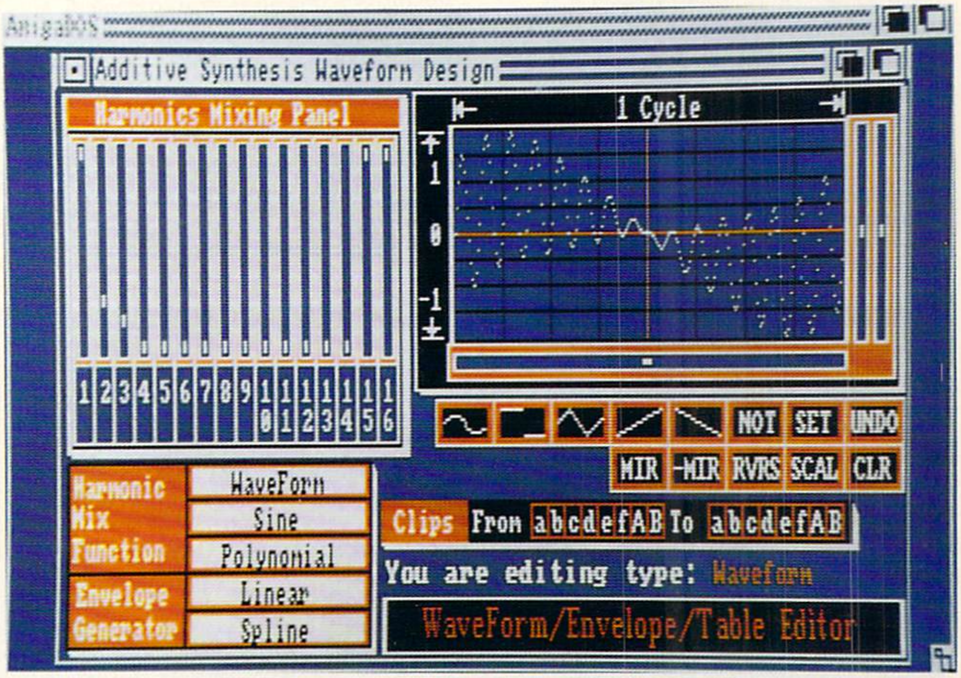
•AC•

AmigaNotes

by Rick Rae CIS #76703,4253

Rick takes a look at Synthia.

This month I'll take a look at a program I've had for several months. I really should have reviewed it sooner, but I kept putting it off. I have an excuse, though. Every time I thought I was ready to write the review, I found one or two more things this package can do. I finally realized there is no way to tell you everything about this little puppy. So, onward ...



Harmonic Mix Function: WaveForm, Sine, Polynomial

Envelope Generator: Linear, Spline

Clips From abcdefAB To abcdefAB

You are editing type: Waveform

Figure One: The Waveform Editor

Synthia From The Other Guys

Synthia is billed as a high performance digital synthesizer. While the definition of "high performance" varies depending on the individual and the application, Synthia definitely does its job well.

When I first picked up my copy, I thought I misread the advertisements. The box was too heavy not to have hardware in it. But I had it right the first time; Synthia is all software. The mass comes from the manual, a 3/4 inch thick, spiral-bound tome weighing almost one and a quarter pounds!

The manual is done almost completely in tutorial fashion, and is very well done indeed. Each new feature is explained in detail when it is introduced, and a step-by-step procedure guides you through the feature's operation. Sitting down with the manual for a few evenings and trying all the examples is probably the best way to learn Synthia.

Although all subjects are treated in fair detail, much of the manual's bulk comes from repetition of key features. Each gadget or function is explained completely for each window, even if it was explained before. Although repetitive, this is truly an excellent approach: when you turn to the section on interpolative synthesis, everything you need is right there. No "see the section on envelopes for details of this function" nonsense. I'd like to see more manuals use this approach.

(continued)

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When you first tour the program, you might be misled into thinking that Synthia is very simple-minded because many gadgets bring up what appears to be the exact same window again and again. Nothing could be further from the truth. There is a lot of subtle power here, and it's not until you really dig that you begin to realize this. At least that was the case for me, and as I said, I'm still stumbling over things I didn't know Synthia could do.

The Waveform Editor

Let's begin by looking at the editor, since this module is central to almost all operations. Figure 1 is a screen shot of the editor, which is called up any time you ask to work on a waveform, envelope, or transfer table. The status line in the lower right-hand corner ("You are editing type: Waveform") indicates which function the editor is currently performing. The display area in the upper right-hand corner shows the shape being built, regardless of what you might be editing.

Like many sample editors, Synthia allows you to draw a waveform into the display area freehand with the mouse. The slider under the display moves the waveform left or right (changing its phase). The first slider to the right moves it up and down, while the second changes the amplitude. The gadgets directly under the display area allow you to immediately call up several predefined waveforms and functions.

To the left is the "Harmonics Mixing Panel," a misnomer in many cases. The five gadgets beneath this group of sliders determine exactly what the sliders do.

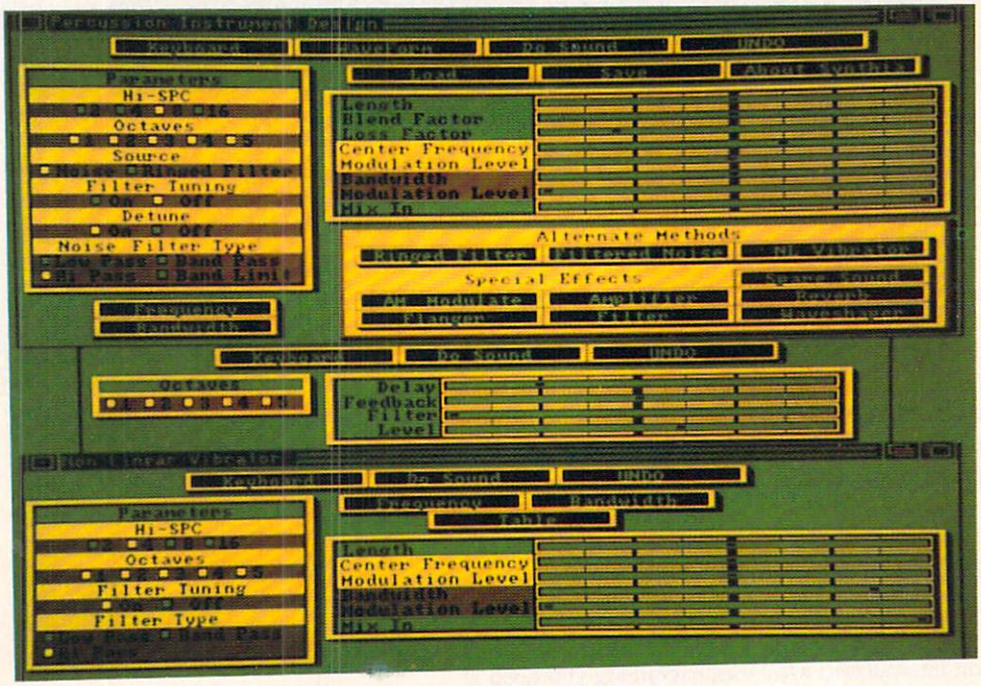

Figure Two: Percussion Instrument Design Window

For traditional additive synthesis, the sixteen sliders represent the first sixteen harmonics of the waveform. This is similar to the approach used by Music Studio, among others. Clicking the WaveForm gadget, instead of the Sine gadget, gives you multiples of the waveform already in the display area, a la Sonix. Clicking on Polynomial gives you a mix of the corresponding Chebyshev polynomials, something which, to my knowledge, no one else does. (I trust you'll forgive me if I say that an explanation of *n*th order polynomials is a bit dry for this column, and forge onward.)

The Linear gadget spreads the positions of the sixteen sliders evenly across the display area, and connects them with straight lines to generate the final shape. The Spline gadget performs a best Spline curve fit, drawing a smooth curve through all sixteen points. You can "grab" a harmonic slider and move it anywhere, or click beyond the slider and move it in tiny increments. You can click the right mouse button beyond the slider, causing it to jump immediately to the mouse position. What's more—and this is really rather nifty—you can hold the right button down and sweep the mouse across the sliders, "drawing" in the settings of the 16 sliders the same way you would draw in a waveform.

Keep in mind that Synthia's editor is an entirely new breed. Upon first look, you might think it works just like any other sample editor. Other editors work with an entire sample, comprising up to several thousand cycles; Synthia begins with a single cycle and modifies it over time. You have complete control over how the initial waveform looks and sounds, and how it changes over time, so you really don't need scrolling waveform displays or zoom controls or markers. Synthia always works with exactly one cycle, and always scales it to the proper amplitude, unless you tell it otherwise.

The editor's other features—like the ability to temporarily store up to eight waveforms and slider settings and then recall them later (even from another module)—emphasize that for its intended purpose, the Synthia editor is powerful.

Once you have a clear understanding of what it's doing (and learn to ignore titles like "Envelope Generator" and "Harmonic Mixing Panel"), Synthia is very easy to use. It is important for the editor to be powerful and flexible because it is used by all the other modules.

Ah, those other modules ...

Instrument Design

Back in AC V3.1, I devoted a column to various ways the Amiga can be used to create sounds. Synthia is a real-life example of many principles discussed that month. The package provides a number of different modules for generating sound. Each one is an independent program, runnable from CLI or Workbench.

"Subtractive" opens a window which allows you to perform subtractive synthesis, starting with a harmonically rich waveform and using filtration to remove unwanted components. Conceptually, this is the simplest module in Synthia, providing little more than an interface to the waveform, envelope, and special effects modules. With it, however, you can create most of the sounds popularized by the earlier synthesizers, not to mention simulations of organs and many other instruments.

This module is a good place to start learning Synthia. Understand the subtractive system, and you have a solid base from which to proceed to the other modules. "Additive" allows you to expand on traditional additive synthesis. Instead of being restricted to sine waves representing the first sixteen harmonics of the fundamental, you can use the waveform editor to create any waveform for each of the sixteen "harmonics." Over time, each of these sixteen waveforms is assigned its own amplitude envelope, which is also created with the waveform editor.

The editor's potential shows up nicely here. You can set the sixteen sliders and use the Linear gadget to create a sixteen-segment envelope (if that's all you need). Or you can draw a 256-point envelope with a sweep of the mouse.

"Interpolation" lets you sequence through a number of timbres to create the total instrument. With Synthia's version, you create eight different waveforms and set the time period between each waveform. Synthia changes the sound gradually from the first waveform to the second, then to the third, and so on until the end of the sound.

This technique is more powerful than it might seem at first. Consider two waveforms with the same harmonics, but with some harmonics out of phase from one waveform to the next. The two static waveforms sound the same because, for the most part, static phase differences aren't discernable. But move slowly from the first waveform to the second, and the amplitudes of those harmonics must decrease to zero and then climb again to reverse their phase. The final result is far more complex than you would expect from simply segueing from one sound to the other or blending the two.

"String" is a special-purpose module that recreates plucked instrument sounds. The process begins with an initial waveform, which is then modified by Synthia, using parameters you have set, to simulate the sound of a vibrating string. Because of the flexibility, however, you can also use this module to create other sounds, such as bells. The string module is very easy to use, and can quickly generate interesting timbres.

"Percussion" is another special-purpose module for percussive sounds like drums, wood blocks, xylophones, or dripping water. Any unpitched or short-pitched sound should be possible. Figure 2 shows the Percussion Instrument Design window in the top half of an interlaced screen, the related Non-Linear Vibrator window in the bottom portion, and the Reverb window sandwiched between the two. (As an aside, you can see that an interlaced screen really is helpful when using Synthia. You can open several windows and have full access to them without juggling front/back gadgets.)

(continued)

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Because of the wide range of sounds it covers, the Percussion module offers more options than most of the others. You may start with a waveform defining the initial sound which is gradually blended with either a ringed filter or filtered noise to simulate the body of a drum. You can also leave out the initial waveform and simply use a ringed filter which is good for wood blocks, xylophones, bells, or filtered noise (which simulates cymbals and the like). Finally, you can apply non-linear waveshaping to a ringed filter for some bizarre effects. The manual refers to this class of sounds as "boings, twangs, and plops."

Synthia also provides for changing a sound's frequency, both statically through the "Center Frequency" slider, and dynamically through a waveform created with the editor. Other instrument design tools include sliders for instrument length, repeat (loop) position, number of points in the highest octave, and even phase shift effects. These functions are common to instrument design modules.

Special Effects

Once you have a basic sound worked out, you can apply a number of special effects. You can also apply any of the special effects to any instrument, whether it was designed by Synthia, another package, or digitized from a live sound.

"AM Modulate" allows you to change the amplitude of a sound over its duration, for effects like tremolo or percussive instruments. As with the instrument design modules, the amplitude changes you impose on a sound are created using the waveform editor, resulting in a familiar, consistent interface.

"Amplifier" provides another method of changing a sound's volume and works very much like the AM Modulate module. The advantage of two such modules is that you can use one to develop the sound's overall volume profile and the other to impart whatever tremolo or special effects you want, without creating a composite waveform.

A better name for the "Reverb" module might be "Echo." Reverb consists of many echoes arriving at random times from random directions. It provides a feeling of spaciousness, like you experience in a concert hall. The "Reverb" module creates single or multiple echoes—repeats of the original sound occurring at regular intervals. Regardless of the name, the effect is useful.

"Flanger" recreates the comb-filtered "jet flyby" effect which occurs when two identical sounds are recorded and played back at slightly different speeds.

"Spare Sound" is a clipboard of sorts, to which you can copy or swap the current sound. As well as acting as temporary storage, this module also allows you to mix the spare sound with the main sound to create a new, composite sample. In addition, Synthia allows you to control the time delay between start of the main sound and start of the spare sound, allowing for some interesting phasing and "slap-back" effects.

"Filter" is a multi-function effect module which performs low-pass, high-pass, band-pass, and band-stop filtering. The center or corner frequency and the bandwidth or "Q" of the filter can be changed dynamically. Many owners will probably spend considerable time here—a dynamic filter is a lot of fun, and can create effects from muted trumpets and bottle pops to guitar wah-wahs and comic effects. Synthia's filter module is powerful and works well.

"Waveshaper" is an interesting toy, to say the least. With this module, you define a "transfer table." For every possible input value (there are 256 in an 8 bit sample), you tell Synthia what the new output value is. As with all other functions, this is done with the waveshape editor. Synthia then processes the input sound, remapping values as you have indicated. The effects of waveshaping are indescribable. The manual agrees: "The effects of waveshaping can be hard to predict."

For example, by applying a second order polynomial to a well-known trumpet sample, I was able to brighten it considerably without harming it. Applying the same operation to other samples produces anything from distortion to a complete change in sound character.

Synthia provides an UNDO gadget for most functions, so you can drop back one step and try again. UNDO seems to swap two buffers, since you can repeatedly click UNDO and compare the two most recent sounds until you decide which one you prefer. As you're creating and modifying your sounds, you can audition them through the Amiga keyboard or with an on-screen keyboard.

Synthia also listens to the MIDI port, but don't expect much from this angle; it is only a convenience feature. Synthia won't respond to many MIDI messages your synthesizer might send, and, if you play with any sort of speed, hung notes are highly possible. For sound auditioning, however, it works well enough.

Extra Goodies

Synthia is a two-disk set. The second disk contains SMUSPlayer, a very nice IFF score player. This program has traditional file requesters for score and instrument directory selection, and it automatically loads the needed instruments for a given score. You also receive Synthia-created sounds and nine scores to give an idea of what Synthia can do.

Bugs: None I Could Find. Complaints: Only a Few.

Synthia is a solid, well-designed system. I like the way it is modularized, since it reduces the memory needed to run any portion of the program. Using the same editor for all functions makes for a familiar environment. And it's nice to find another company that trusts us enough to leave out the copy protection.

The ability to leave certain windows in place can be handy if you're jumping back and forth between functions searching for a sound. Since many of the windows take up a good part of the screen, it's useful to run in interlaced mode, allowing you to bring up two and sometimes three Synthia windows without any appreciable overlap.

Unfortunately, Synthia's designers didn't seem to give much thought to interlaced displays: Synthia's windows are loaded with single pixel-width lines, and it requires judicious color choices to avoid serious flicker. Some people are bothered by the large number of windows that pop in and out with Mimetic's Pro MIDI Studio. Well, Pro MIDI has nothing on Synthia. Nearly every Synthia function pops up a new window, each overlaying the preceding ones, and similar enough to make the screen a confusing jumble. Since Synthia lets you close any windows you don't want, this is not a problem as long as you put things back when you're done with them. (I got the hang of this easily with Synthia; now if I could just learn to do the same in my apartment ...)

I found one minor problem with the manual. In several places, I ran across instructions such as "Select b and create the initial waveform." Since there is a clip marker labeled "b," I thought this was what was referred to, but I could never get anything to happen. It wasn't until I became familiar with Synthia that it dawned on me that the manual meant to say was "WaveForm," not "b." I imagine some gadget names were not finalized when the manual was initially written, so they were called "a", "b", and so on, and when the final edit was performed, one of the search-and-replace operations slipped. This is just conjecture, but if you run across such a reference in the manual, try substituting the name of a likely gadget for that window.

All things considered, Synthia is a refreshing approach to create new instruments and modify existing ones. Take time to learn the system. Don't try to make it do things better suited to a sample editor and you will be rewarded with a raft of new instruments and sound effects for your favorite compositions. That'll do it for now ... see you next month!

•AC•

Synthia $99.99
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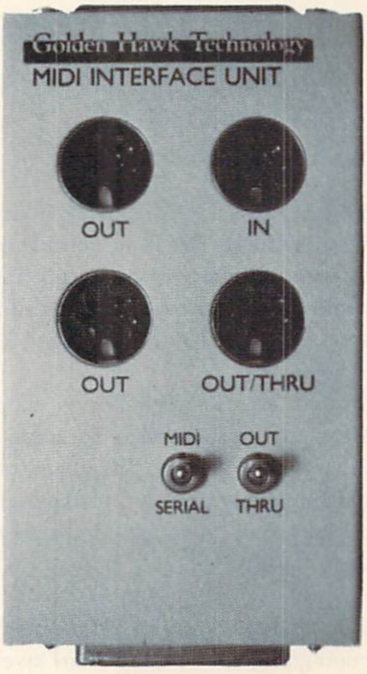

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Bear Products MegaRex II Expansion RAM

By Steve Carter

MegaRex II is a RAM expansion kit from Bear Products. This is an external bus mounted product for the A1000. The kit comes in several configurations and will soon be available for the Amiga 500.

I found the most appealing aspect of the MegaRex II was its price. For about $530, I had a 2 meg Amiga. The luxury of this much memory came a lot sooner and cheaper than I had figured, thanks to Bear Products.

I am the type of person who doesn't mind going third class, if I can save money by doing it myself. Almost from the moment I got my Amiga, I was waiting for someone to come up with a cheap "Do-It-Yourself" kit. The 1/2 MB hack in a previous issue of AC was cheap, but a little too "Do-It-Yourself" for my blood. Besides, the 1/2 MB didn't seem worth the trouble.

MegaRex II to the rescue. It took a while, but Bear Products came up with what I was waiting for. The beauty of the MegaRex II is its availability in different configurations for different levels of assembly. From a bare board, where you supply all the parts and do all the work, to a fully assembled and tested board, there should be something to please everyone. All the kits are available from 0 MB to 2 MB. A pass-through connector and enclosure are separately priced options.

Bear Products charges a very reasonable fee to assemble and test the unit ($49). If you wish to do the job yourself, you might be interested in my experiences.

I purchased the kit with all the parts, and started into it. The assembly manual was clearly written and illustrated, so I really had no problems putting things where they were supposed to go. I believe it took me about eight hours to do the job. As you might expect, the most time-consuming part was the soldering.

After soldering the sockets, resistors, and capacitors, it was simply a matter of installing the chips in their respective sockets. Oh yes, a tricky manuever was getting the bus connector in its holes, but the soldering was a snap.

After all the work was done, it was time for a test. After careful checking, I found a bad solder joint on the bus connector. At that point, I thought it would be prudent to double check all the solder points. Boy, there were a lot. I found two or three more bad joints on the memory sockets.

I tried again, and this time the board functioned correctly. If you're not extremely attentive to your soldering, you'll spend a lot of time looking for mistakes. All in all, it is probably worth it to have Bear Products assemble and test the board for you.

With the assembly of the board out of the way, I was anxious to use it. It was a pleasure to find that there wasn't much to the software end. The product comes with an Icon driven disk that contains some documentation, sample startup scripts, a few public domain programs relating to expansion RAM, and a couple of CLI commands.

The CLI commands are both copyrighted Bear Products programs—an AddMem command and a RamDiag command. As this is not a hardware auto-configure board, the AddMem is required to let the Amiga know the memory is available. Upon request and for a fee, Bear Products can set up your kit to hardware auto-configure up to the first MB of expansion RAM. However, I found it simply a matter of inserting the AddMem command, with its appropriate arguments, in my startup-sequence, and the memory was available almost immediately upon boot-up. This procedure can be compared to using Binddrivers to inform the system of the presence of hard disk drive.

AddMem is similar to Commodore's AddMem-type program. It requires a starting address and an ending address. However, Bear Products takes things a little further and adds three options: Test, NoAdd and Memory Clear. Through different combinations of the options, you can test your memory with or without adding it, and clear it first. The clear option brings up a significant difference between the two versions. Other AddMems always clear the memory first. This means, if you are using a recoverable RAM disk, such as ASDG's shareware VD0:, the contents will be lost when the AddMem command is issued. Not so with Bear Products AddMem; it clears only if you include the clear option.

I think AddMem can be considered a feature of the MegaRex II. Obviously, until the AddMem is given, the expansion RAM is not available. This is true whether running under DOS 1.1 or 1.2. I would like to point out the advantages of the non-hardware, auto-configure expansion RAM which AddMem provides.

I really enjoy the flexibility the AddMem command gives me, especially Bear Products. My startup-sequence is set up to test for the presence of disks in DF1: containing certain programs. For example, if I boot, warm or cold, with the Transformer in DF1: my startup-sequence adds only a certain amount (about 3/4 MB) of expansion RAM. This allows the Transformer to run and recognize 640K of memory for MS-DOS. If Deluxe Paint is in DF1: then the full 1.5 MB of expansion RAM is added and the mounting of VD 0: is bypassed, giving the memory-hungry DPaint a full 2 MB to work with. This flexibility is not available to those with hardware, auto-configure expansion products. Also, if I use a program that doesn't get along with expansion RAM, then I just don't add it in.

You haven't lived until you've run your Amiga with Workbench assigned and located in VDK: or VD0: (recoverable RAM disks). It's like adding a third drive just for your Workbench disk, except much faster.

RamDiag is a program to test the RAM board for errors. It reports specific problem locations. Having had no problem whatsoever, I had no use for this command.

The public domain programs included are: LoadAcv, MakeAcv, DME, and SetFont.

LoadAcv and MakeAcv are two programs which, when used together, are an alternate method of moving a large number of files from one device to another, i.e. a C directory from your Workbench disk to RAM:.

DME is a very flexible programmer editor.

SetFont allows you to use fonts other than the default TOPAZ in your CLIs and their tasks.

A little more about the hardware on the MegaRex II. For those who choose to have Bear Products assemble and test the board, the boards I saw looked solid. If you decide to buy the kit, you should be proficient in soldering. If you aren't, forty-nine dollars is not a lot for a professional job. You can purchase a metal enclosure for the MegaRex II from Bear Products, but it is not included in the kit.

MegaRex II is designed with no forced wait states, and draws about 400 mA (based on the chips supplied by Bear Products). If you use your own and they are of a higher power consumption, your board will obviously draw more. The board can be assembled to pass the bus, which means it will run with the sidecar or any other expansion products. Of course, you can also add a second MegaRex II and configure your system for a big 4 MB. A new version of the board is said to work around the PAL problem and allow the stacking of four boards. Using the AddMem command you can give your system a contiguous 8 MB block of memory.

The MegaRex II has a couple of other features you hardware hackers may be interested in. There exist positive and negative pads for the possible connection of a separate power source for the board(s). You could even wire up a battery-backed power supply.

The board also has facilities for bread boarding. None of these options are currently supported by Bear Products, but if you have the knowledge, they are willing to help.

Bear Products, a small company, started with the idea that the Amiga 1000 market was ready for this type of product, they are very helpful and quite willing to see that their customers are satisfied, something I am sure all of us can appreciate.

The following prices do not include RAM chips.

Components and Board in kit form	$99.00
Assembled & Tested	$49.00
Pass thru connector	$15.00
Enclosure	$15.00

RAM chips available from Bear Products—Current prices (subject to change) are about $95 per half MB ($5.50 to $6.25 a chip). When this was written, the Dollar was setting new lows against the Yen and memory chips had shot up.

So what are we talking about here—a minimal 1 MB expansion kit assembled and tested—about $340 (no pass-thru or enclosure).

Each board can be expanded up to two MB, by just adding RAM chips in half MB increments. You can use two boards together, fully loaded, to give yourself four MB of expansion RAM.

Bear Products is located in San Jose, California, and their product has a one-year warranty. Bear Products is not a company with a large marketing budget and is hoping to keep the prices low by not spending a lot to promote their product. I have been using the product for about three months now, and am absolutely thrilled with it. This is a product worth your dollars.

•AC•

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(formerly BareBoards)
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(408) 279-1959

C Notes from the C Group

by Stephen Kemp
PLINK ID: SKEMP

Last month we wrote our first program in C—the standard "Hello World" program. This month I will discuss the basic object and data types used for variable definitions. Since some of you may already be familiar with the basic variable types, I will try to keep the discussion interesting.

Although the smallest addressable unit of data is a single bit, a bit cannot be defined by itself. The basic data types in C are character, integer, and floating point. Each of these types has sub-categories that I will discuss more in a moment. Some more advanced object types are address pointers, structures, and unions, but I will save the discussion of these for the future.

A character is the smallest definable object in C, and when used to define a variable it is abbreviated as "char". Chars are 8 bits long and may represent any value between -128 to +127. Many computer books will have an appendix listing the ASCII character set which defines what the values between 0 and 127 normally represent. For those who are interested, ASCII stands for "American Standard for Coded Information Interchange."

Characters have one "sub-category," the "unsigned char." (NOTE: Being unsigned means that no sign bit is reserved in the data space; thus, an unsigned variable will always be a positive number.) An unsigned character is still 8 bits long, but it will never represent a negative number. Since only positive values can be represented, an unsigned character can hold any value from 0 to 255.

Integer is the next data type and, unfortunately, it can be a source of confusion on the Amiga. The confusion is because an "int" usually defaults to one of the subcategory of integers, the "short int" or the "long int." Unfortunately, Lattice C and Manx C (the two major compilers for the Amiga) did not see eye-to-eye on which one to use as the default. The default size is important when reserving data space and when parameters are passed to functions.

Lattice and Manx have valid reasons for their choices. Manx uses the shorter as the default because it offers smaller program size and faster execution speed. Lattice apparently uses the longer as the default because it is more compatible with the operating system. It will be important to remember the difference between these two compilers when downloading programs from bulletin boards or typing programs in from magazines. To avoid much of the confusion, my program listings, appearing in this column, will use "short" and "long" when declaring variables instead of the ambiguous "int."

As mentioned in the previous paragraph, two sub-categories of the integer type are the short int and the long int. Short ints are 16 bits, and represent the values between -32768 and +32767. Long integers are 32 bits in length, and can represent any number between -2,147,483,648 to +2,147,483,647. When declaring variables of these types you can omit the "int" and just use the appropriate adjective "short" or "long."

A third (and fourth?) sub-category of the integer is the unsigned type. Both shorts and longs can be declared as unsigned. Like the unsigned char, declaring an unsigned integer means that it cannot represent a negative number. Unsigned shorts hold values up to 65,535. Unsigned longs can represent any value from 0 to 4,294,967,295.

The last basic object type is the floating-point type. With reference to mathematics, all the types we have discussed up to this point would fall into the category called integers because they can represent only whole numbers (i.e. -1, 0, 1...). When you have to keep track of fractional values (as with interest rates or money) you will need a floating-point variable.

There are two categories for floating-point numbers, "float" and "double." The differences between these two types are the amount of precision each maintains and the size reserved for each. A float defines a 32-bit, single-precision number, while a double is a 64-bit, double-precision number. Simply put, precision is the number of significant digits maintained following the decimal place.

Although it is assumed that a double maintains greater precision than a float, the amount of precision maintained will actually be determined by the floating-point arithmetic method used in your math library. Unless you need to perform calculations that require detailed precision, the additional overhead required for defining doubles may not be justified.

Listing One: SAMPLE.LST

```
 1 /* This program (SAMPLE.C) will demonstrate the difference between */
 2 /* a char and an unsigned char                                    */
 3 /* a short and an unsigned short                                  */
 4 /* a long and an unsigned long                                    */
 5 /* a float and a double                                           */
 6 /* Each type will be given a value that will show how            */
 7 /* its alternate type interprets the data                         */
 8
 9 #include <stdio.h>
10
11 main()
12 {
13 char           char_var;
14 unsigned char  un_char_var;
15 short          short_var;
16 unsigned short un_short_var;
17 long           long_var;
18 unsigned long  un_long_var;
19 float          float_var;
20 double         double_var;
21
22 /* Assign a negative value to the character variable */
23 /* Assign the value in the char to the unsigned char */
24 /* Then print the values to verify them              */
25
26   char_var    = -10;        /* negative value assigned */
27   un_char_var = char_var;  /* the unsigned char = the char */
28
29   printf("char = %d, unsigned char=%d\n",char_var,un_char_var);
22
23 /* Assign a large value to the unsigned short variable */
24 /* Assign the value of the short to the unsigned short */
25 /* Then print the values to verify them                */
26
27   un_short_var = 45000;/* A value larger than a reg int */
28   short_var    = un_short_var; /* the short = the unsign short    */
29
30   printf("short = %d, unsigned short = %u\n",short_var,un_short_var);
31
32 /* Assign -1 to the long variable                   */
33 /* Assign the value of the long to the unsigned long  */
34 /* Print the values to verify them                  */
35
36    long_var    = -1;
37    un_long_var = long_var;
38
39   printf("long = %ld, unsigned long = %lu\n",long_var,un_long_var);
40
41 /* Assign a value to a double that has a number of decimal places */
42 /* Assign the value of the double to the float       */
43 /* Then print the values to verify them              */
44
45   double_var = 3.14159265;   /* Assign PI to the double var */
46   float_var  = double_var;  /* Assign the value to the float */
47
48   printf("float = %.9g, double = %.9g\n",float_var,double_var);
49
50 }
```

Listing 1 is a program listing that uses all the variations of the data types we have discussed. Please note: The line numbers are not part of the program source—these will be used as reference points throughout the remainder of this article.

In addition to what is indicated in the comments at the top of the listing (lines 1-7), this program also demonstrates a number of common errors that people make while programming. The difference between signed and unsigned numbers should be noted. Many people have spent hours debugging programs only to discover that they were using an unsigned variable and waiting for it to have a negative value or vice versa.

Lines 13-20 hold the variable declarations. Notice that the type is indicated first, and then the name of the variable. Remember, program maintenance can be enhanced tremendously if you choose significant names for your variables. Variable names can be comprised of letters, digits, and the underscore "_" character. The first letter must be either a letter or an underscore.

Although variable names can be almost any length, Kernighan and Ritchie state that only the first eight characters of a name are significant. This means the compiler will not be able to distinguish between a variable named "variable_one" and a variable named "variable_two".

The last thing to remember about variable names in C is that they are case sensitive. That means you could have a variable named "VAR_NAME" and one named "var_name" in the same function. I recommend that you try to avoid doing this! Trust me, it would only lead to trouble. The most common practice is to name variables using lower case letters.

On line 25 a negative value is assigned to the char variable. Next (line 26) we set the unsigned char equal to the char. Remember that an unsigned variable assumes that all values are positive. When assigned a negative value, an unsigned variable will assume that the bit containing the sign is part of the value. You will see this when the results are printed.

The "short" variable on line 34 is assigned a legitimate value, since it is unsigned. However, when that value is assigned into a signed short, we will see that the action that occurs is the opposite of what happens in the char example. The signed short will think the value is negative since the bit it assumes to be the normal sign bit is turned on.

Assigning a negative value to a long (line 43) and then assigning that value to an unsigned long (line 44) will act the same as in the char situation. I included it here to demonstrate that assigning a -1 to an unsigned variable will produce the largest value that the unsigned type can hold.

The difference between a float and a double is the number of significant digits. On line 52 the value of PI to 8 decimal places is placed in the double variable. As in our other examples, the value is then placed in the variable's alternate type. In our output, we'll see how well each type maintains the value.

Before explaining how to compile and link the program, I should discuss the printf statements used in the examples. As in the "Hello World" program we wrote last month, this program relies on the printf statement for its output. You will notice, however, that this time we pass a number of parameters to the function instead of a single string.

Without going into great detail, the strings that we pass to printf indicate that additional data must be processed by including the "%" followed by a conversion letter. The conversion letters we have used are: d for integer, u for unsigned integer, and g for floating-point numbers. When indicating a long variable, an "l" is included between the % and the conversion letter. Finally, the ".9" included on the floating point numbers indicates the number of significant digits we want printed.

(continued)

To compile our program (I am using the Manx C compiler—if you have another compiler you may have to refer to your documentation) type the following:

```
CC +FI sample.c
```

The +FI is a compiler switch indicating that we want the program compiled using the double-precision floating-point emulation. This is necessary if we want our double variable to work properly. Link the program like this:

```
        LN sample.o -LMA -LC
```

MA is the Amiga's math library, and of course, we also have to link in the standard C.LIB. After a successful compile and link, you can run your program by typing:

Figure 1 lists the output you should get. Notice the values of all the signed variables as compared to their unsigned counterparts. Pay particular attention to the values of the float and double. The double reflects the exact value we placed in it, while the float lost significance in the conversion. As mentioned above, the extra size and overhead of using doubles may not be justified unless you need that extra precision.

That completes this month's example. If you are so inclined, take your sample program and modify it. Mix the assignments by assigning values like: char = long, unsigned long = negative char, short = float, etc. This may give you more insight into how the variable can interact. I should tell you that some compilers may generate warnings if you mix some variable types (like char = long) but for the purpose of learning you may ignore them. I don't recommend that warnings be ignored in application programs, but they should not harm the sample program.

FIGURE 1

```
char = -10, unsigned char = 246
short = -20536, unsigned short = 45000
long = -1, unsigned long = 4294967295
```

Be sure and tune in again next issue. Until then, don't be afraid to experiment, and don't be afraid to ask questions.

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Roomers

by The Bandito

Psst ... guess what's up this month...

HAM Paint Wars, Part III: For those of you who bought Deluxe products from Electronic Arts, the new issue of the *Deluxe News* newsletter is out, pushing Deluxe PhotoLab, DeluxePrint II, Deluxe Productions, and a DeluxeVideo contest. The snappy cover art of Deluxe News is a photomontage of digitized pictures; the montage also happens to be the cover of Deluxe PhotoLab, EA's new HAM paint program. The catch is that Larry Keenan, the ace photographer who created the montage, used Digi-View to digitize the photographs, but did not use Deluxe PhotoLab to manipulate the images. Instead, he used NewTek's rival HAM paint program, Digi-Paint. Doubters should consult the *Computer Chronicles* public television show on the Amiga (#513), which clearly shows Keenan working on the Deluxe PhotoLab cover using Digi-Paint. Oh, irony of ironies ...

The Bandito hears that EA will soon close deals to distribute SSI products (such as Phantasie) and Sir-Tech (best-known for Wizardry) as affiliated labels. This distribution arrangement leaves the publishing company (such as SSI) in control of programming, packaging, and advertising the products, while using the power of the bigger company's in-house sales staff. Electronic Arts invented the concept a few years ago, and the other entertainment companies, like Broderbund and Activision, have copied it recently. (Hey, why not steal from the best?) In the process, bidding for these small publishers has gotten more intense, starting with Broderbund's luring Origin Systems away from EA, and now Activision's acquiring InterPlay (authors of The Bard's Tale) from EA.

It looks like the entertainment software business is finally undergoing the kind of consolidation that happened with business software a couple of years ago. The "Big Four"—EA, Broderbund, Mindscape, and Activision—will control most of the action, either directly or through distribution agreements. Companies like Accolade, Spectrum Holobyte, and MicroProse will either make the break into the big leagues soon, or end up with a distribution agreement with one of the Big Four. Unfortunately, the cost of breaking into the market for a new company continues to rise, so it becomes less likely that we'll see innovative software. The Big Four are getting more conservative all the time, concentrating their development efforts on IBM and C64 products that are "just like (name a previous hit product), only better." The only hope for breakthrough game concepts lies with the Amiga, where the market is still unsophisticated enough for a clever entrepreneur to break in. The Bandito knows you're out there—start programming!

There's been a shake-up at Aegis Development; and as a result, President Dave Barrett is no longer in charge. The Bandito couldn't track him down—perhaps he's on a desert island somewhere. The new President of Aegis is John Fruin, formerly a financial honcho with the company. The Bandito knows that when you put a financial guy in charge of a company, it usually means there are cash flow problems. Some of their developers haven't received royalties for a while ...

Another 3D object creation program is heading for the marketplace: 3-Demon from Mimetics. This one features conversion between all the many popular 3D object creation and rendering programs, as well as a number of tools for creating such objects. 3-Demon has only minimal rendering tools, leaving that task to programs like Sculpt-3D and VideoScape. Performance is good on a 68020-equipped A2000, but the Bandito's spies have yet to see it on a stock Amiga.

By the way, don't we have enough 3D programs already? Admittedly, the Amiga is a great platform for 3D object creation, with its 4096 colors and blitter chip, but there ought to be a law against more than ten 3D object modeling programs on any CPU. It wouldn't be so bad if they didn't each have a different file format. Whatever happened to IFF standards? Yo, Carolyn Scheppner, are you listening?

The Bandito attended the Developer's Conference and managed to stay awake through most of it. Nothing of great interest that the Bandito hadn't heard before and passed on to you. Well, there will be a new Microsoft BASIC for Amiga, revised to work with new system software. Other stuff in the offing from Microsoft for the Amiga? We'll see. Negotiations continue about bringing other Microsoft products to the Amiga.

The latest Comdex in Atlanta was mostly a showplace for IBM. There were no real new surprises at the show, which shows that Amiga developers have become more cautious about introducing new products too far in advance. Commodore showed off its Professional Video Adapter (PVA) board; it received some mild interest and some barely stifled yawns from dealers. The PVA board was developed by the New York Institute of Technology, and includes a genlock and a frame grabber for a price somewhere around $800. It's a Video Toaster wanna-be without the digital video effects, but

(continued)

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with the price. Why does Commodore bother? Perhaps it'll be out before the Toaster, but this seems unlikely.

Progressive Peripherals showed its $500 frame grabber at Comdex, but the picture quality didn't look as good as the demo pictures that have been circulating. Looks like the "demo" pictures may have been done with some expensive broadcast camera equipment, not what you'd expect the average Amiga owner to have handy.

CD-I. What's it all about? Well, CD-I stands for Compact Disc Interactive, and it should be of interest to Amiga owners. Sony and Philips got together and created a standard for a CD-I player they hope will become a consumer electronics hit like the CD audio format. They've licensed the technology to anybody who's interested. A CD-I player is essentially a 68000 computer with a CD-ROM drive built in, so it can store up to 600 megabytes of data, like CD quality sound and video quality images. It will even be capable of showing full motion video, though not on a full screen. Think of NewTek's Demo Reel, and you get the picture. Philips hopes to have this unit out by Christmas 1989, initially at about $1200 retail.

But there are more than a few problems. First of all, there's no disk drive or any way to store data—the CD-ROM is read-only, and the machine has about 8K of non-volatile RAM which is to be used to store control settings. (The player does have a megabyte of RAM standard for running programs and buffering the information flow off the CD-ROM.) There's no keyboard, only a specification for a "pointing device," which could be a mouse, a joystick, a trackball, or even an IR remote with arrow keys.

The big question is, what does it do? The CD-I player is supposed to plug into your TV and your stereo, and many companies are looking into creating software. What kind of software? Well, games, encyclopedias, databases with pictures, that kind of thing. The software is the missing link. Unless someone can come up with a compelling reason why you should pay twelve hundred bucks to sit in front of a CD-I player instead of a TV, a computer, or a CD player, the Bandito doesn't think this animal will fly.

Tandy's recent announcement of THOR-CD, a fully erasable and writeable CD, could throw the whole CD-I development into a cocked hat. Who would buy a read-only CD player when you could have a read/write CD player? Some big companies are putting a lot of money into CD-I development; EA alone has sunk nearly a million bucks into prototype hardware and software. Don't bet on anything real until 1990, though.

The real joker in the deck is the Amiga. Add a CD-ROM or a THOR-CD player to an Amiga 500, and you've got a CD-I killer, especially if the Amiga's graphics are upgraded to, say, 32,000 colors onscreen. Of course, to really make it work, Commodore would have to license the technology to everyone, and they'd have to get behind it and push. Perhaps Commodore's ongoing dialogue with Microsoft (a major CD-ROM supporter) will have some bearing on this issue.

Perfect Vision's cost is going up to $250, with the VCR capture option at $100, for a total of $350. That's more than Amiga Live!, and getting perilously close to the $500 real-time frame grabber from Progressive Peripherals. Anyone looking at a Perfect Vision could tell that it was not making much money at the lower price, though. The Bandito figures that the low $219.95 introductory price was an attempt to steal some market share from NewTek's Digi-View. An unsuccessful attempt, since Digi-View is doing better than ever. But the recent onslaught of real-time framegrabbers presents a more serious assault on Digi-View. What will NewTek do in response? The Bandito hears that the long-rumored Digi-Adapter will finally make its appearance this summer. As to exactly what it will do, no word yet, but expect something amazing ...

Peggy Herrington, famed Amiga freelance writer, has taken over editorship of AmNews. The disk-based magazine has been puttering along, but has managed to garner a respectable audience. Look for much better articles, graphics, and music in future issues.

West Germany is now a bigger market for Amiga products than the U.S., and it's growing faster. We'll probably see more West German imports in software and hardware. The bad part of the news is that it means companies will put more attention on the German market and less in the U.S. Where is Amiga going in America? Sales have been flat, and it seems less likely that Commodore's new management is going to push the product into the mass market channels (even if the mass market channels want Amigas). The only bright spot is that Atari is fading fast in the U.S. home market, and Apple doesn't want to be caught dead selling a home computer. So Commodore's only real competition is the C64 at the low end, and hopefully they can compete successfully against themselves. At the higher end are the MS-DOS clones, primarily Tandy. May God forbid that MS-DOS clones set the new home computer standard for graphics, sound, and animation. The Bandito would sooner buy a Nintendo ...

•AC•

The Developing Amiga

Keeping track of the latest news, projects, plans, and happenings in the Amiga

by Stephen R. Pietrowicz

Welcome to The Developing Amiga! The Developing Amiga is a new monthly column to help you keep track of the latest news, projects, plans, and happenings in the Amiga community. The Developing Amiga also covers some helpful programming tips, techniques, and your suggestions.

Get More Technical Information From Commodore

There are several sets of material that can be ordered directly from Commodore that you don't have to be a certified developer to get. Some information that may interest you:

A500/A2000 Technical Reference Manual $40.00

This large reference manual explains the hardware features of the Amiga 500 and Amiga 2000. Covered topics include: Amiga expansion slot specifications, the bridgeboard and janus.library, technical documentation of the A2090 hard drive, schematics for the Amiga 500 and Amiga 2000, and more.

IFF Manual and Disk $20.00

A spiral-bound manual with full IFF documentation, including listings, and a disk containing source code and executable programs.

Fall 1986 Developer's Conference Notes

Information put together by each speaker, including diagrams and outlines of each conference topic at the Second Annual Amiga Developer's Conference. Topics include: Graphics, Hardware topics, MIDI sound, and the Amiga Programmer's Suite by RJ Mical. Commodore is putting together a set of notes covering the April developer's conference. I'll let you know about it when it is available.

AmigaMail

The official Commodore-Amiga Technical Support (CATS) newsletter is not for developers only. The latest in news, tips, and information from Commodore is available for $20 for a one-year subscription.

All prices listed above are in U.S. funds. Canadian orders should add $2.50; foreign orders add $5.00. Send check or money order, payable to Commodore Business Machines (in U.S. funds) to:

Commodore Business Machines
Attn: Lauren Brown
1200 Wilson Drive
West Chester, PA 19380

Quick Notes on Spring Comdex

Spring Comdex has just ended as I finish up this month's column. I'd like to pass along some information I heard from Oran Sands, an assistant chairman of the Amiga Zone.

One of the most impressive things shown during Commodore's dealer meeting was the A2500 UX. Commodore demonstrated the clipping capabilities between two Maxiplan screens and a Lotus 1-2-3 screen (Lotus was running on a bridgeboard). They also demonstrated UNIX.

All reports I've heard about CBM's UNIX say that it is *fast*. Some UNIX users may be disappointed that Commodore picked AT&T's UNIX System V, instead of Berkley's widely accepted implementation, BSD 4.3. Since I'm a BSD fan, I was a bit disappointed at first, but upon further reflection, I think the AT&T implementation may be better in the long run for Commodore. Since SUN Microsystems and AT&T have started to discuss a standardized UNIX operating system, odds are that systems running System V implementations will migrate more easily to future releases of UNIX. At this point, trying to guess what AT&T and SUN are going to come up with is somewhat difficult. Commodore may be going with the AT&T standard, hoping that future UNIX developments from AT&T will be compatible.

The addition of UNIX will help the Amiga gain acceptance in the engineering market as a low-cost work station. Speculation on which windowing system Commodore would use for the AmigaUNIX system also ended with the announcement of a proprietary low-level windowing manager. There was a rumor around for quite some time that Commodore might provide a port of XWindows. Unfortunately, it wasn't true.

Commodore also announced: A2024 Hi Res Mono Monitor 1008x800, A2300 Genlock (industrial quality), A2620 68020 Card, A2090A Hard Disk Controller, both ST-506 and SCSI controllers with DMA, A2058 8 MB RAM expansion which uses 1 MB chips and only one slot, A2286 10 MHz Bridgeboard with 80286 CPU AT compatibility.

(continued)

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Commodore showed a 25 MHz 68030/68882 card, but no release date has been set.

Copyright CAREFULLY!

A note to developers: write those copyright notices carefully! I've noticed that many people releasing software to the public aren't putting correct copyright notices on the software. I've seen notices such as, "The software is public domain. Please don't do anything to it without the author's permission." In the two sentences, the writer contradicts himself. If he really meant to retain rights to the software, he should have written a copyright notice, and labeled the software "freely distributable."

Now, to be fair, I've been guilty of the same thing. I think the reason I made that mistake, and so many people continue to make it, is that they just don't know what "public domain" really means. If you release something in the public domain, you're giving everyone permission to do whatever they want to with the code. They can change it, enhance it, even sell it. Since it's in the public domain, they don't have to answer to anyone.

The other extreme is copyrighted software. Copyrighted software is usually written by an individual or company and sold. Copyrights give the seller and the buyer specific rights, usually outlined in the software documentation. In most cases, copyrighted software is not to be distributed by anyone other than the author or company.

Somewhere between these two extremes are "shareware" and "freely distributable" software. Shareware is copyrighted software the author distributes and asks that you pay a fee once you decide to use the software. The advantage of this approach is you can use the software for a short period of time and decide whether or not you'll continue to use the software. The author can then collect a small donation from those using the software. Unfortunately, most shareware cash collections aren't very successful.

"Copyrighted/freely distributable" software has a copyright to protect the author, but can be distributed to anyone without charge; it's basically "shareware" without the donation. The author copyrights the software so no one can do things to the software without permission, but the software may be used by anyone. If you write software for public release, please label your software accurately. Make sure you say what you mean in your labeling. Don't misuse the term "public domain," or you may be surprised to see your software on the shelves of your local store.

Wrap Up

If you have any news, suggestions, questions, or programming hints please send them in at:

The Developing Amiga
c/o Amazing Computing
P.O. Box 869
Fall River, MA 02722

Stephen R. Pietrowicz is an assistant chairman of People/Link's Amiga Zone, a freelance writer, and a member of The C Group.

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ROLL THOSE PRESSES!

by Barney Schwartz

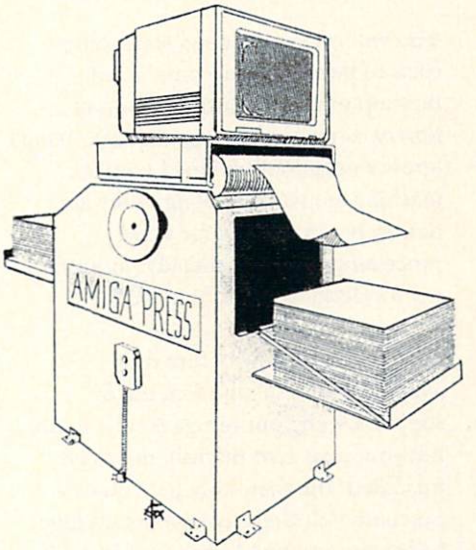
A new column on AMIGA Desktop Publishing.

Have you always dreamed of being able to profit from the literary talent you *know* lies within you? Have you always dreamed of being able to write, proof, edit, format, print, style, reproduce, distribute and market your work? Do you think desktop publishing is the answer? If so, this column is dedicated to you.

To realize your dream, you must buy the best, most complete, easiest to use desktop publishing program, write to your heart's content, and make a million. Easy enough, right?

I don't want to discourage you, but one of the largest aircraft manufacturers in the world has a *one million dollar* single sheet document on display in its corporate office. This document was the end product of a desktop publishing system. Of course, the single sheet didn't cost $1,000,000. However, the computer system, the writer's time, the enormous quantity of paper wasted to produce the example on the wall, and the time *not* spent by the writer on his primary occupation did total $1,000,000. I want to emphasize that while desktop publishing may be a boon, it could easily become a boondoggle. The purpose of this column is to aid the boon and stifle the doggle.

Let's explore the component parts of a desktop publishing system. First, you need a computer. (Since you're reading this column, I assume you have an Amiga.) Second, you need to choose a desktop publishing program. I'll try to help with a look at the features of programs now available and new programs as they become available. Third, you need an output device: a dot matrix printer, ink-jet printer, laser printer, typesetter (like a Lineotronic machine). That's not quite all you'll need, but it is a good start.



Depending on the desktop publishing package you choose, you may also need a word processor. Some packages stand-alone, while others support import-export of various word processor text and ASCII files. This overlap leads to the murky question of what is and what is not a desktop publishing package.

Although I agree that it is not fair to call a word processor a desktop publishing package, there are programs like ProWrite, VizaWrite DeskTop, and KindWords, which cross the fine line between simply formatting text (what a word processor does) and formatting pages (what a desktop publishing package does). For our purposes, we will say that a desktop publishing package formats pages. Everything else is either a word processor or a graphics processor.

Before you begin formatting pages with your desktop publishing package, you must do some preliminary preparation. Gather all the necessary parts of your document. These parts can consist of many items, including:

TEXT: The prose from which the columns will be made.

TABLES: Matter which may not fit into columns designed for text.

GRAPHICS: Figures, illustrations, drawings, photographs, etc.

Text may come from a variety of sources. Most desktop publishing packages allow import of text from ASCII files. Some packages allow import from a variety of word processors. At any rate, it is usually much more efficient to create the prose in a word processor environment and copy to the desktop publishing package. Almost any straight word processor is suitable to the task. You should keep format as simple as possible to save much editing time within the formatted page.

Tables can be developed in either a word processor, such as Word Perfect, or in a graphics package, such as Deluxe Paint. Word processors without columnation and graphics packages without text capabilities are obviously unsuitable. If you own such packages, and can't change to another at this time, you may be able to create tables from within the desktop publishing package. However, this task will certainly be a painstaking endeavor.

Graphics, like text, can come from many sources. Clip-art from outside sources, digitized images (in either IFF or HAM format), photographs, sketches, and cut and paste pictures for advertisement are all suitable. You can also use a drawing or CAD program or, if you are artistically inclined, you may be able to create graphics on the fly from within a desktop publishing package that supports graphics.

(continued)

After you gather everything for the document, you have some decisions to make. You must first decide what the most important item on each page should be. Although each page of the document may contain many topics, you should, in most cases, lead the reader through the page from the most important to the least important item. This may be difficult at first, but, with lots of practice, patience, and sheer repetition, the task becomes easier. In future segments, we will progress from simple to complex documents using a variety of desktop publishing packages and different formatting methods.

One thing I have noticed that runs rampant in documents created with desktop publishing packages is abuse of those cute little clips supplied with most programs. Another problem is using too many fonts on one page. A good rule of thumb for creating documents: KEEP IT SIMPLE!! While font changes do draw attention to an article, too many fonts breed indifference.

Also, keep in mind that your reader will undoubtedly scan the page for something interesting; most likely the entire page will not be read. Guide your reader through each page by using large type and poignant wording for headlines and topics. Stay with one font for the body text of the entire document. Don't forget, pictures really are worth a thousand words, especially for capturing the reader's interest. Tables are also useful; they often express what can't be explained with pages of convoluted text.

You will eventually need some other tools to become an accomplished desktop publishing artist. Your font library can never be large enough. We all know Amiga fonts shipped with the machine are sorely lacking. They are definitely not suitable for word processing and are generally unsatisfactory for desktop publishing work.

Should you buy every font disk available? After all, the font editor supplied with your Amiga is worth a try, but your goal is to publish, not to be frustrated. But there is help. You can purchase CalliGrapher from InterActive Softworks and build your own fonts. If building your own fonts is too great a chore, Lion's Fonts, Andre's Fonts, EBS Fonts (if you can still find them) and Kara's Fonts will supply you with most of what you need.

Next, you might want to invest in a graphics manipulation package. While desktop publishing packages import graphics, and most allow you to resize graphics, they are not meant to strictly control these manipulations. If the art cannot be cropped to proper size, it must be shrunk or enlarged. This manipulation usually results in loss of detail. Packages like Butcher from Eagle Tree Software and D'Buddy from Digital Creations are well worth the investment.

All these tools and many others will be explained in this column. We will explore all the possibilities. We will look into repetitive news letters using black-and-white dot matrix printers. We'll unlock the mysteries of dealing with PostScript and other laser devices. We'll take a look at color mediums, output devices, and methods. And we'll push to the limit the capabilities available users of the Amiga, *Amazing Computing* and a desktop publishing package.

This column is for *you*, the readers and Amiga users who want to learn about desktop publishing. Please write with questions, answers, or topics you would like to see covered.

•AC•

The present crop of desktop publishing packages include:

- City Desk, MicroSearch, 9896 SW Freeway, Houston, TX 77074
- PageSetter, The Gold Disk, 2179 Dunwin Dr. #6, Mississauga, Ontario Canada L5L 1X2
- Professional Page, The Gold Disk, 2179 Dunwin Dr. #6, Mississauga, Ontario Canada L5L 1X2
- Publisher Plus, Brown-Wagh Distributors, 16795 Lark Ave., Suite 210, Los Gatos, CA 95030
- Shakespeare, Infinity Software, 1144 65th St., Suite C, Emeryville, CA 94608

The soon-to-be-available list includes:

- Dynamic Word, MicroIllusions, 17408 Chatsworth St., Granada Hills, CA 91344
- Publishing Partner Professional, Soft-Logik, 11131 South Towne Sq., Suite F, St. Louis, MO 63123

Basic Desktop Publishing Terms

FLUSH LEFT: To align column content vertically on the left margin.

FLUSH RIGHT: To align column content vertically on the right margin.

FONT: A complete assortment of type in one particular size; usually contains all capitals and lower case letters of the alphabet, plus punctuation symbols and numbers.

GALLEY: A proof copy of the printed page. You view a GALLEY on screen before printing.

GUTTER: The space between columns of text or graphics areas on the page.

HYPHENATION: Separating words with a hyphen. Used to equalize space in a justified column.

JUSTIFICATION: Adjusting space in a text line to make a column flush both left and right.

KERNING: Setting the space between letters of a font.

LEADING: The space between lines of type, usually measured from the baseline of one line of type to the baseline of the next.

PICA: A horizontal unit of measure in printing. One PICA equals 12 points.

POINT: The unit of measure for sizing type and rules. For example, the type you are reading is nine point on 12 point leading.

RULE: A line, either vertical or horizontal, which separates parts of a page.

SAN SERIF: A letter or typeface that does not have fine line ending the main stokes of each character.

SERIF: The fine line projecting from the main stroke of a letter in the usual font of a typeface.

As a publisher, these terms and many others will become part of your vocabulary. They will become second nature and many will cause you endless grief.

Linked Lists in C

by William E. Gammill

"C" what Linked Lists can do with dynamic memory!

Introduction

With the Amiga, as with C, there are numerous ways to do any one thing. However, most of us find one way to get something done and stick with it. If that thing must be done often, we may try to mechanize it. So it is with programming. If, when coding, we find we are writing certain lines repeatedly, we may write a function to simplify the task. And there I stubbed my toe at work the other day. But before I get to that, let's talk about linked lists.

If you have looked at any Amiga-related C code, you certainly should have noticed the words "linked list", or simply,"lists". If you're an expert on lists, you may want to skip the text of this article and simply check the macro code. If not, stay with me.

When I was introduced to C in an informal company night class, my instructor skimmed through linked list and blew my already boggled mind away. But he stressed that the lists were important, so I studied them. And through the concept of linked list, I discovered I liked C a lot better than FORTAN or TPL. (What!? You've never heard of TPL?) At that time, the computer at work did not support C, so I bought an Amiga to learn it (a good move on my part).

You probably have a C book, and you may have read about linked list. If you haven't, do so. Although I can't match the information provided by any book, I would like to write about what a linked list is and how to use one.

Linked List

One of the real powers of C is dynamic memory allocation. And one of the ways to use dynamic memory is via linked list. These powers are beyond FORTRAN's reach— at least beyond the FORTRAN I have experience with (I haven't used FORTRAN 77).

Let's say you are going to compute the area of an acreage, and your input is in bearing and length. How many sides are there to this acre? You don't know. With dynamic memory, and linked list, you don't need to know. Simply set up a structure to contain your bearing and length information and go into a collection loop. Each time the user enters a new set of data, you grab a new chuck of memory. Then you tie each of these chucks together with pointers. In the end, you are able to return a single pointer to the top of a chain of structures, each pointing to the next—a linked list.

With variations, your code would look something like this:

```
                typedef struct vec {
                        char to, from;
                        int degrees, minutes;
                        double length;
                        struct vec *prev;
                        struct vec *next;
                } vector;

                vector * readVec()
                {...
                        vector * vecPtr = NULL;
                        vector * nxtPtr = NULL;
                        vector * topPtr = NULL;
                        ...
                        if (!(vecPtr = vecLinker())) return NULL;
                        topPtr = vecPtr;
                        ...
                        while([readingUserInput]) {
                                ...
                                getBearing(vecPtr);
                                if (!(nxtPtr = vecLinker())
return NULL;
                                vecPtr->next = nxtPtr;
                                nxtPtr->prev = vecPtr;
                                nxtPtr->next = NULL;
                                vecPtr = nxtPtr;

                        ...
                        }...
                return topPtr;
                }
```

I am not trying to tell you how to create a linked list. I am trying to show how easy it is to handle an unknown number of entries. You obtain a pointer at a location in memory where your data may be stored. Then you link up your list by making sure all pointers are taken care of, and point the old user input data to the new space you obtained. If you like, you can point the new space back to the old data (double link it). Finally, null terminate your new link and collect some more data.

Users can type in coordinates endlessly, or form anything from a triangle to a dodecagon and beyond. Don't worry about it; each entry is dynamically allocated. In the end, you have a nice, null terminaled, linked list to pass off to another routine.

Also, since you are using a C structure, the compiler takes care of how much memory each link needs. Did you forget something? Go ahead, add it to your structure. Recompile, and your new space requirements are provided. (Try that in FORTRAN.) I love it! With a lot of effort and a conference paper to guide me, I was able to fake this in TPL. I sure couldn't have done it with the FORTRAN I used to use.

The null termination is important. A function running through a list must know when it reaches the end, hence the null termina-

(continued)

tor. In the example, I showed my list being double linked—both up and down via vecPtr->prev and vecPtr->next. If your list is data to be processed top to bottom, double linking in unnecessary. To modify the list, you'll find double linking useful.

Now that we have a list, let's work with it. Let's delete a link. It's easy. Assuming a list with members B, C, D, simply point B->next to D rather than C (If double linked, point D->prev to B). Give the C memory back to the system. The link is gone.

Adding a link is almost as easy, except you must be double linked. If sticking Z between E and F, simply point E->next to Z, F->prev to Z, Z->prev to E, and finally Z->next to F. Voila. The list has grown one member longer.

Easy, but repetitious. I have found more puzzling links than I would lead you to believe, and they don't come nicely named A, B, C, D. Rather, an address would likely be vecPtr->next though one pass and vecPtr on the next and vecPtr->prev as the loop continues. It can become very confusing, especially when you're first trying to understand all this stuff. ("What's this guy talking about? I don't really understand pointer yet!")

So now we've come to the gist of this article—where I stubbed my toe the other morning. You see, I was wondering how to delete a member of a previously built list after I found a member which did not belong. It occurred to me that I had built a number of lists recently, and they all looked very much alike. Not only that, but each time I built one, I wrote a new little linker function just for that list type. And somewhere is a loop where I was always pointing this guy that way and that guy toward some other guy and on and on. The names were all the same, the error checking was constantly tripping me up, and I was tired of crashing when I got my pointers wrong. It was time to write a function! But I couldn't!

The function could not be told all it needed to know and still be general. Then I had a brilliant idea. It made my day. (I don't often have "brilliant ideas".) Why not write my general purpose linker as a macro? It worked!

So, my friend, if you know nothing about linked lists, but would like to, or if you find the linkage repetitious, perhaps my macros will prove to be your salvation.

Macros

I have created two macros to assist in creating and managing a linked list. CRLINK creates an easy to use, one step function, which, given a null pointer, will start building a list, or inserting a new link into an existing list. RMLINK creates a separate one step function to allow you to delete any link from your list. Each macro allows you to name your functions as you choose and specify the name of the structure the function is to process. The only restriction is the structure must be double linked, and contain self-referenced members "prev" and "next".

I have tried to document the macros to answer any questions on using them. But examples are often worth more than documentation, so I have enclosed a multi-case example. The intent of the example is simply to show how to use the macros. It's not fancy. If you have trouble getting your code to compile after typing in my macros, try using your compilers option to generate preprocessor expansions (lc1 -p, if using Lattice). Remember, no white space after any of the line continuation backslashes.

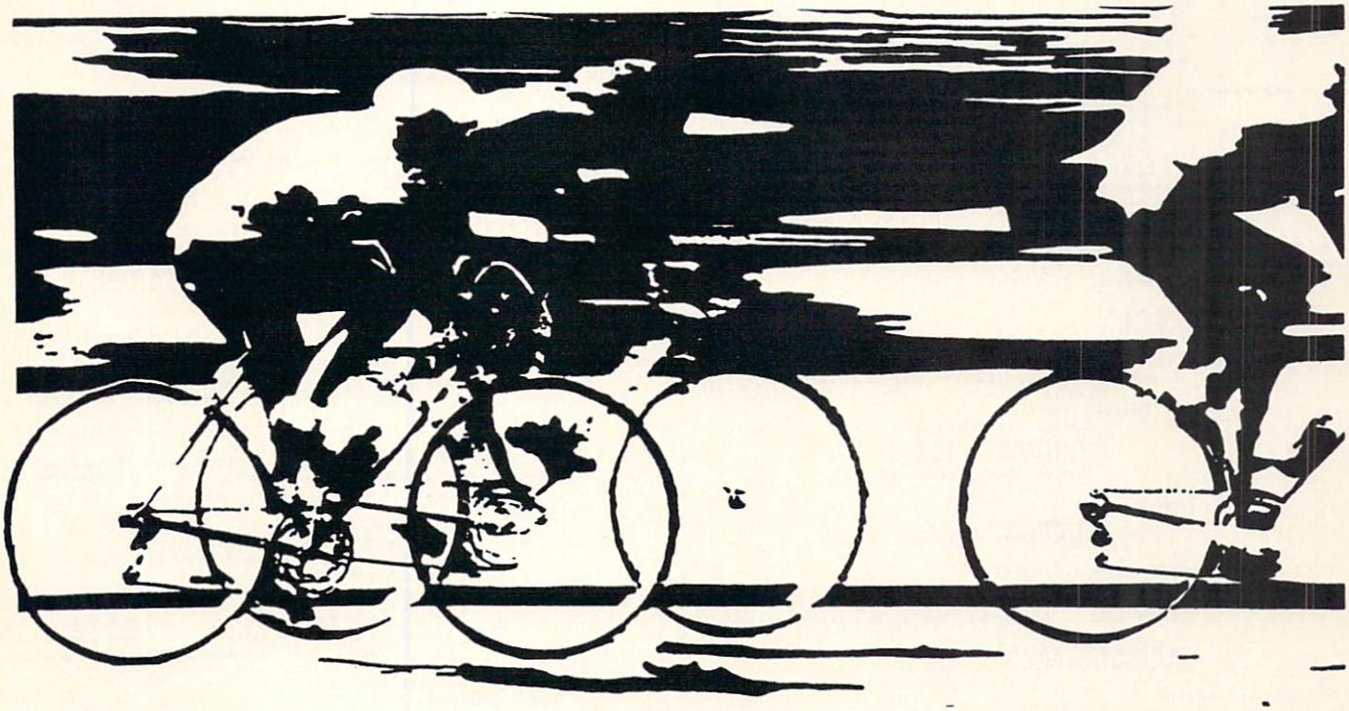
Hopefully, these two macros will prove useful to you. Perhaps they will flower in your mind, and you will expand the idea presented.

Listing One

```
/**********************************************************************
***                                                                 ***
***                     Macros CRLINK and RMLINK                    ***
***                                                                 ***
***********************************************************************
*
*         Use Example:
*
          *Use a seperated occurance of each macro for each sturcture needed.
*         Do not terminate the macros' statement with a simicolon.
*
*         Inclusions at top of code:
*
*                   #include  “miStruct.h”  ;define  structure
*                   #include  “macros.h”                 ;macros of interest
*
*         Variation 1:
*         Use the macros before the body of the code.
*
*                   CRLINK(crlink,miLink)                ;no ";"
*                   RMLINK(rmlink,miLink)                ;no ";"
*
*                   main() {                             ;body of code
*                     ...
*                     miLink * miPtr;
*                     miLink * miNew;
*                     ...
*          if (!(miNew = crlink(miPtr))) printf("out of memmory\n");
*                     ...
*                       rmlink(miPtr);
*                     ...
*                   }
*
*         Variation 2:
* Profile funcNames at the top of the code, and use the macros after
*         the body of the code.  CRLINK funcName must be declared as a pointer
*         to a structure.  RMLINK funcName must be declared as void.
*
*                   miLink * crlink();     ;profile funcName for CRLINK
*                   void rmlink();         ;profile funcName for RMLINK
*
*                   main()                               ;body of code
*                   {}
*
*                   CRLINK(crlink,miLink)                ;no ";"
*                   RMLINK(rmlink,miLink)                ;no ";"
*
**********************************************************************
*
*         Basic structure required.
*
*                   typedef struct structTag {
*                             [declarations];
*                             struct structTag * prev;
*                             struct structTag * next;
*                             } structName;
*
*         Example:
*
*                   typedef struct MIPTR {                         ;external
*                             int miptr;
*                             struct MIPTR * prev;
*                             struct MIPTR * next;
*                   } miLink;
*
*
*         miLink * miPtr;                                          ;local
*/

/*********************************************************************
*         Name:     CRLINK
*
*         Purpose:  To create a function used to:
*                   1)  Create a new link within an existing linked list.
*                     Or,   2)  To create a new node if no list exists.
*                     Or,   3)  To append a new node to an existing list.
*
*         Macro:
*                   Syntax:     CRLINK(funcName,structName)
*                   Input:      funcName:   Name of function to create.
*                               structName: Name of structure to reference.
```

(continued on page 102)



Smarter, Not Harder

Developing a product for the Amiga market is like participating in a good race; it requires strategy, pacing, and command of your resources. Sometimes, no matter how hard you spin your wheels, you just can't make it to the front of the pack. If the front of the pack is where you want to be, consider placing your advertisement in Amazing Computing.

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```
 *                      Output:     none.
 *
 *          Function  created:
 *                      Syntax:     structPointer = funcName(structPointer);
 *                      Input:      A pointer of type structName.
 *                      Output:     A pointer of type structName.
 *                      Error:      Return of NULL.
 *
 *          Restrictions:
 *                      The structure must contain self reference pointers, "prev",
 *                      and "next".
 *
 *          Comment:
 *                      New links are always created "after" or "below" the
 *                      parameter pointer, hence, one may not create a new
 *                      head for an existing list.
 */

#define  CRLINK(funcName,structName)\
structName * funcName(linkPtr)\
          structName * linkPtr;\
{\
          structName * newPtr;\
          structName * nextPtr;\
\
          if (linkPtr) {\
                    if (!(newPtr = (structName *)calloc(1,sizeof(structName))))\
                              return NULL;\
                    if (linkPtr->next) {\
                              nextPtr = linkPtr->next;\
                              newPtr->next = nextPtr;\
                              nextPtr->prev = newPtr;\
                              linkPtr->next = newPtr;\
                    }\
                    else {\
                              linkPtr->next = newPtr;\
                              newPtr->next = NULL;\
                    }\
                    newPtr->prev = linkPtr;\
          }\
          else {\
                    if (!(newPtr = (structName *)calloc(1,sizeof(structName))))\
                              return NULL;\
                    newPtr->prev = NULL;\
                    newPtr->next = NULL;\
          }\
          return newPtr;\
}


/**************************************************************************
 *          Name:       RMLINK
 *
 *          Purpose:  To create a function to remove a link from a lined list.
 *
 *          Macro:
 *                      Syntax:     RMLINK(funcName,structName)
 *                      Input:      funcName:   Name of function to create.
 *                                  structName: Name of structure to reference.
 *                      Output:     none.
 *
 *          Function  created:
 *                      Syntax:     funcName(structPointer);
 *                      Input:      A pointer of type structName.
 *                      Output:     none (void)
 *                      Error:      none
 *
 *          Restrictions:
 *                      The structure must contain self reference pointers, "prev",
 *                      and "next".
 *
 *          Comment:
 *                      The function created by RMLINK tries to error check and
 *                      avoid causing trouble.  But an error return was judged
 *                      of little use, hence, the use of void.
 */

#define  RMLINK(funcName,structName)\
void  funcName(linkPtr)\
          structName * linkPtr;\
{\
          structName * prevPtr;\
          structName * nextPtr;\
\
          if (!linkPtr) return;\
          if  ((linkPtr->prev==NULL)&&(linkPtr->next==NULL))  {\
                    free(linkPtr);\
                    return;\
          }\
\
          if (linkPtr->prev) prevPtr = linkPtr->prev;\
          else prevPtr = NULL;\
          if (linkPtr->next) nextPtr = linkPtr->next;\
          else nextPtr = NULL;\
\
          if (nextPtr) nextPtr->prev = prevPtr;\
          else prevPtr->next = NULL;\
\
          if (prevPtr) prevPtr->next = nextPtr;\
          else nextPtr->prev = NULL;\
\
          linkPtr->next = NULL;\
          free(linkPtr);\
}
/*************************************************************************/

/*************************************************************************
***            A function used to test the macros CRLINK and RMLINK.      ***
*************************************************************************/

#include  <exec/types.h>
#include  "macros.h"

/* The stucture we will use while building our lists. */
typedef struct MIPTR {
          int miptr;
          struct MIPTR * prev;
          struct MIPTR * next;
} miLink;

/* In reference to the source comments:  "version 1":
 * Define a rmlink() function.
 */

RMLINK(rmlink,miLink)                                  /* note:  no ";" used */

/* In reference to the source comments:  "version 2":
 * Profile a crlink() function.
 */

miLink * crlink();


/* Profile a varification function used to help us see what we have done. */
void runlist();

void main() {
          miLink * miPtr  = NULL;               /* Used to build the list. */
          miLink * newPtr = NULL;               /* Used to build the list. */
          miLink * topPtr = NULL;               /* Save the top of the list. */
          miLink * midPtr = NULL;               /* Save a member of the list. */
          miLink * okPtr  = NULL;               /* Save a member of the list. */

          SHORT cnt;                /* For loop counter (I avoid "i"). */

          /* Create a linked list using the CRLINK created function crlink()
           * and save a pointers to the top of the list, the third link
           * within the list and one other for later use.
           */
          for (cnt=0; cnt<5; cnt++) {
                    if (!(newPtr = crlink(miPtr))) {
                              printf("unable to obtain memory\n");
                              exit(10);
                    }
                    if (!cnt) topPtr = newPtr;          /* Save the header. */
                    if (cnt == 3) midPtr = miPtr;       /* Save a member. */
                    if (cnt == 4) okPtr = miPtr;        /* Save a member. */
                    miPtr = newPtr;          /* Step foward to next ptr. */
          }
          printf("\nThe list created:\n");
          runlist(topPtr);

          /* add a new member within the list, just after the third link */
          newPtr = crlink(midPtr);

          printf("\nThe list with a new member:\n");
          printf("Inserted link: %d, ->prev: %d, ->next %d\n",
                    newPtr, newPtr->prev, newPtr->next);
          runlist(topPtr);
          /* Three test of RMLINK -
           *        remove link just added.
           *        remove last link on the list.
           *        remove first link of the list.
           */
          printf("\nRemove the link just added\n");
          rmlink(newPtr);
          runlist(topPtr);

          printf("\nRemove the last link of the list\n");
          rmlink(miPtr);
          runlist(topPtr);

          /* we have not saved the second item on the list.  If we
           * remove the top, and runlist() works top down, how do we
           * run the list?  We don't!
           */
          printf("\nRemove the top link on the list\n");
          rmlink(topPtr);
          runlist(topPtr);          /* This is a logical error. */

          /* Note:   rmlink() freed topPtr; but the system has not used it
           * yet, so the above logical error works (for now).
           */
          /* (I saved okPtr just for this job - I knew I was going to
           * delete both the top and the bottom of the list and get myself
           * into trouble.)
           */

          /* find the true top of the list */
          while (okPtr) {
                    topPtr = okPtr;
                    okPtr = okPtr->prev;
          }
          /* Now we can really run from the true top down. */
          printf("A true report of the list\n");
          runlist(topPtr);
}

/*************************************************************************/

/* Verbos little function to let us see what our macros have done. */
void  runlist(memPtr)
          miLink * memPtr;
{
          while(memPtr)  {
                    printf("\nmemPtr...... %d\n", memPtr);
                    printf("memPtr->prev  %d\n", memPtr->prev);
                    printf("memPtr->next  %d\n", memPtr->next);

                    memPtr = memPtr->next;
          }
          printf("————————\n");
}

/* Create the crlink() fuction profiled at the top of the code. */
/* note that the statement does not end with a ";" */

CRLINK(crlink,miLink)
```

•AC•

PD Serendipity

Insight into the World of Freely Redistributable Software for the Amiga™

by C.W. Flatte

Hey there! I'm back with more of the latest Fred Fish disks (still only up to 138). Now let's get to 'em.

Fred Fish 131

Dfc

Ever try to make multiple copies of a disk using the AmigaDOS Diskcopy command? A time-consuming and painstaking task at best. You could use Marauder, but why spend big bucks to copy a few disks? Enter Dfc. Dfc is a replacement (and much more) for both the Format and Diskcopy commands. Dfc has several additional options, such as disk buffering for quick additional copies, a verify mode, and the ability to write to multiple disks simultaneously. Dfc is accessible from the CLI (using command line arguments) or through the Workbench (with a nice Intuition interface). Dfc is by Thomas Rokicki, of BlitLab and AmigaTEX fame. Includes the source in C.

Hyperbase V1.6

(Update to Fred Fish 58)

Got the database blues? Make your filing fun and fast with Hyperbase. Hyperbase is a flexible database management system, great for small mailing lists. Written by Michael MacKenzie, Marc Mengel, and Craig Norburg. Includes only the executable—the source is available from the authors.

Life

Does cellular automata excite you? Then get a life... that is, get Life, by Thomas Rokicki. Life is a new version of his ancient Life game, including a new macro language for setting up examples. By Thomas Rokicki. Includes the source in C.

Mackie

Just when you thought it was safe to Popcli... Mackie. Mackie is another Popcli replacement that, among other things, draws pretty lines on the screen in the screen blanking mode. Originally by the Software Distillery, with enhancements by Thomas Rokicki. Includes the source in C.

> **Do you wonder what your program is doing to memory? Or why you can't load that program? Don't get mad. Get WFrags.**

Mg1b

Turn those seemingly useless function-keys into powerplants of productivity with Mg1b, the macro program. Define macros and bind them to function keys in your startup-sequence. Mg1b is now included with an ARexx port and other improvements. Originally by various authors, with enhancements by Thomas Rokicki. Includes the source in C.

WFrags

Programmers! Do you wonder what your program is doing to memory? Or why you can't load that program? Don't get mad. Get WFrags. WFrags pops up a small window that constantly updates your memory fragmentation, free memory, and sizes of the largest available chunks. WFrags can be run from both the CLI and the Workbench. By Thomas Rokicki. (Maybe this disk should be titled The Thomas Rokicki Disk.) Includes the source in C.

Fred Fish 132

What were your first thoughts after you saw Leo Schwab's "The Dream Goes Berserk" demo (on Fred Fish 100)? Your first thought was probably a WOW, followed by confusion. How did he do it? Is he insane or is he a genius?

Decide for yourself. Fred Fish 100 is dedicated to "The Dream Goes Berserk" demo, including all the source and object descriptions you need to recreate this fantastic animation. You can modify the objects, or use the code as a starting point for your own animations.

However... be warned! This stuff is not for the faint of heart. The disk is jam-packed with code and object descriptions—there's not even room for

(continued)

many icons. It's definitely a don't-miss for the animation-heads among us.

Fred Fish 133

ConMan V1.1

(Update to disk 100)

Do you use the CLI? What happens when you make a mistake in one of your command lines? You can't edit the line; you have to type it over. This is a big feature that's missing in the console handler. And don't you wish you could keep a history of all your commands which you could bring up with the press of the up-arrow? It could save lots of time and frustration. Your prince has arrived!

ConMan is an extremely useful replacement for the standard console handler. It provides line editing and command line histories. ConMan is also transparent to any application which uses CON: windows. New features to version 1.1 include additional editing keys, fast search keys, and an undo key. Also includes the ability to clear the history. This is not only a don't-miss; it's a necessity for anyone who uses the CLI. ConMan is shareware and definitely worth a donation to author William Hawes (of ARexx fame). Includes only the executable.

CRC V1.0

Sometimes it is necessary to verify whether two files are the same (after a download or diskcopy, for example). How can you do this if the original file isn't available?

CRC provides an accurate means of verifying whether or not the files on two disks are the same, without duplicating the disk. A 16-bit crc (cyclic redundancy check) is calculated for a file's contents. The result can be saved and compared to the crc for any duplicates of this file. If the crc's are the same, then everything is kosher. If not, you may have corrupt file on your hands. CRC was written by Don Kindred, and includes only the executable.

CRC Lists

So now you say to yourself... SO WHAT? Where do I get CRC check files so I can verify my files? Fred Fish himself has created CRC check files for disks 1-128 of his library. Now you can check your own disks for corruption. Thanks, Fred.

Overscan

Attention European users! Do you want to run software written for the American market without modifying the applications? Overscan patches the Intuition library so sizeable windows with a MaxHeight of 200 (400 in interlace mode) and screens with a Height of 200 (400 in interlace mode) will take advantage of Intuition V1.2's PAL overscan capability. A great job by Ari Freund. Includes the source.

Well, that's about all I have time for. Next month I hope to cover Fred Fish 134-138... unless something new pops into the Public Domain.

Until then...
Gotcha!!

—*C.W. Flatte*

If you have any questions, tips, cigarette butts, etc., please send them to:

C.W. Flatte
c/o Amazing Computing Magazine
P.O. Box 869
Fall River, MA 02720

•AC•

Gary Bonham Interview

continued from page 64

encourage others to take a close look at it. It outperforms the Amiga significantly and I think it offers the Amiga serious competition.

As for future generation hardware, Commodore needs a machine with 32-bit, 14 MHz Chip RAM, and Chip RAM should be significantly increased in size. You see, what gives the Mac II the edge over the Amiga is its high speed dual port video RAM.

The Mac also has what's called a "chunky pixel" or a "byte pixel" which makes it easier to program in some cases. The Amiga, on the other hand, has a corresponding bit in each plane that is used to find out what color is being displayed. In the Mac II, all eight bits of a pixel are stored in one place, whereas the Amiga's is spread out.

AC: I understand that you have several children and grandchildren. Not too many Amiga developers can boast that! Are any of your family members interested in the Amiga?

Bonham: Well, I have two systems that I use—one at work and one at home. Since I do a lot of my work at home, it can be aggravating at times. But for the most part, my entire family is supportive of my work at home. I have a young grandson who is fascinated by the Amiga. He heads for it every time I leave it alone! One time I came back to the computer after taking a break and found the end of a twelve inch-long paint brush in the Amiga's floppy disk drive. I was worried at first, but after I dislodged it, the machine booted with no damage done!

Some of the younger members of our family are fans of *Winnie The Pooh*. That's where I got the idea to end all of my programs with a T.T.F.N., which can be seen in an open CLI window.

AC: Thanks Gary for your time! And to all of our dear readers of Amazing Computing: T.T.F.N.

•AC•

The AMICUS & Fred Fish Public Domain Software Library

This software is collected from user groups and electronic bulletin boards around the nation. Each Amicus disk is nearly full, and is fully accessible from the Workbench. If source code is provided for any program, then the executable version is also present. This means that you don't need the C compiler to run these programs. An exception is granted for those programs only of use to people who own a C compiler.

The Fred Fish disk are collected by Mr. Fred Fish, a good and active friend of the Amiga.

Note: Each description line below may include something like 'S-O-E-D', which stands for 'source, object file, executable and documentation'. Any combination of these letters indicates what forms of the program are present. Basic programs are presented entirely in source code format.

AMICUS Disk 1

ABasic programs: Graphics

3DSolids	3d solids modeling prog. w/sample data files
Blocks	draws blocks
Cubes	draws cubes
Durer	draws pictures in the style of Durer
FScape	draws fractal landscapes
Hidden	3D drawing program, w/ hidden line removal
JPad	simple paint program
Optical	draw several optical illusions
PaintBox	simple paint program
Shuttle	draws the Shuttle in 3d wireframe
SpaceArt	graphics demo
Speaker	speech utility
Sphere	draws spheres
Spiral	draws color spirals
ThreeDee	3d function plots
Topography	artificial topography
Wheels	draws circle graphics
Xenos	draws fractal planet landscapes

ABasic programs: Tools

AddressBook	simple database program for addresses
CardFile	simple card file database program
Demo	multiwindow demo
KeyCodes	shows keycodes for a key you press
Menu	run many ABasic programs from a menu
MoreColors	way to get more colors on the screen at once, using aliasing
shapes	simple color shape designer SpeakIt speech and narrator demo

ABasic programs: Games

BrickOut	classic computer brick wall game
Othello	also known as 'go'
Saucer	simple shoot-em-up game
Spelling	simple talking spelling game
ToyBox	selectable graphics demo

ABasic programs: Sounds

Entertainer	plays that tune
HAL9000	pretends it's a real computer
Police	simple police siren sound
SugarPlum	plays "The Dance of the Sugarplum Fairies"

C programs:

ATerm	simple terminal program, S-E
cc	aid to compiling with Lattice C
decvnt	opposite of CONVERT for cross developers
Dotty	source code to the 'dotty window demo
echox	unix-style filename expansion, partial S,O-D
fasterfp	explains use of fast-floating point math
FixDate	fixes future dates on all files on a disk, S-E
freedraw	simple Workbench drawing prog.,S-E
GfxMem	graphic memory usage indicator, S-E
Grep	searches for a given string in a file with
docs.	ham shows off the hold-and-modify method of color generation
IBM2Amiga	fast parallel cable transfers between an IBM and an Amiga
Mandel	Mandelbrot set program, S-E
moire	patterned graphic demo, S-E
objfix	makes Lattice C object file symbols visible to Wack, S-E
quick	quick sort strings routine
raw	example sample window I/O
setlace	turns on interlace mode, S-E
sparks	qix-type graphic demo, S-E

Other executable programs:

SpeechToy	speech demonstration
WhichFont	displays all available fonts

Texts:

68020	describes 68020 speedup board from CSA
Aliases	explains uses of the ASSIGN command
Bugs	known bug list in Lattice C 3.02
CLICard	reference card for AmigaDOS CLI
CLICommands	guide to using the CLI
Commands	shorter guide to AmigaDOS CLI commands
EdCommands	guide to the ED editor
Filenames	AmigaDOS filename wildcard conventions
HalfBright	explains rare graphics chips that can do more colors
ModemPins	description of the serial port pinout
RAMdisks	tips on setting up your RAM: disk
ROMWack	tips on using ROMWack
Sounds	explanation of Instrument demo sound file format
Speed	refutation of Amiga's CPU and custom chip speed
WackCmds	tips on using Wack

AMICUS Disk 2

C programs:

alib	AmigaDOS object library manager , S-E
ar	text file archive program, S-E
fixobj	auto-chops executable files
shell	simple CLI shell, S-E
sq, usq	file compression programs, S-E
YachtC	a familiar game, S-E
Make	a simple 'make' programming utility, S-E
Emacs	an early version of the Amiga text editor, S-E-D

Assembler programs:

bsearch.asm	binary search code
qsort.asm	Unix compatible qsort() function, source and C test program
setjmp.asm	setjmp() code for Lattice 3.02
SVprintf	Unix system V compatible printf()
trees.o	Unix compatible tree() function, O-D

(This disk formerly had IFF specification files and examples. Since this spec is constantly updated, the IFF spec files have been moved to their own disk in the AMICUS collection.)

John Draper Amiga Tutorials:

Animate	describes animation algorithms
Gadgets	tutorial on gadgets
Menus	learn about Intuition menus

AMICUS Disk 3

C programs:

Xref	a C cross-reference gen., S-E
6bitcolor	extra-half-bright chip gfx demo, S-E
Chop	truncate (chop) files down to size, S-E
Cleanup	removes strange characters from text files
CR2LF	converts carriage returns to line feeds in Amiga files, S-E
Error	adds compile errors to a C file, S
Hello	window ex. from the RKM, S
Kermit	generic Kermit implementation, flakey, no terminal mode, S-E
Scales	sound demo plays scales, S-E
SkewB	Rubik cube demo in hi-res colors, S-E

AmigaBasicProgs(dir)

Automata	cellular automata simulation
CrazyEights	card game
Graph	function graphing programs
WitchingHour	a game

ABasiC programs:

Casino	games of poker, blackjack, dice, and craps
Gomoku	also known as 'othello'
Sabotage	sort of an adventure game

Executable programs:

Disassem	a 68000 disassembler, E-D
DpSlide	shows a given set of IFF pictures, E-D
Arrange	a text formatting program, E-D

Assembler programs:

Argoterm	terminal program with speech and Xmodem, S-E

AMICUS Disk 4 **Files from the original Amiga Technical BBS**

Note that some of these files are old, and refer to older versions of the operating system. These files came from the Sun system that served as Amiga technical support HQ for most of 1985. These files do not carry a warranty, and are for educational purposes only. Of course, that's not to say they don't work.

Complete and nearly up-to-date C source to 'image.ed', an early version of the Icon Editor. This is a little flaky, but compiles and runs.

An Intuition demo, in full C source, including files: demomenu.c, demomenu2.c, demoreq.c, getascii.c, idemo.c, idemo.guide, idemo.make, idemoall.h, nodos.c, and txwrite.c

addmem.c	add external memory to the system
bobtest.c	example of BOB use
consoleIO.c	console IO example
creaport.c	create and delete ports
creastdi.c	create standard I/O requests
creatask.c	creating task examples
diskio.c	example of track read and write
dotty.c	source to the 'dotty window' demo
dualplay.c	dual playfield example
flood.c	flood fill example
freemap.c	old version of 'freemap'
geltools.c	tools for VSprites and BOBs
gfxmem.c	graphic memory usage indicator
hello.c	window example from RKM
inputdev.c	adding an input handler to the input stream
joystk.c	reading the joystick
keybd.c	direct keyboard reading
layertes.c	layers examples
mousport.c	test mouse port
ownlib.c,	
ownlib.asm	example of making your own library with Lattice
paratest.c	tests parallel port commands
seritest.c	tests serial port commands
serisamp.c	example of serial port use
prinintr.c	sample printer interface code
prtbase.h	printer device definitions
regintes.c	region test program
setlace.c	source to interlace on/off program
setparallel.c	set the attributes of the parallel port
SetSerial.c	set the attributes (parity, data bits)port the
singplay.c	single playfield example
speechtoy.c	source to narrator and phonetics demo
timedely.c	simple timer demo
timer.c	exec support timer functions
timrstuf.c	more exec support timer functions
WhichFont.c	loads and displays all available system fonts

process.i and prtbase.i assmebler include files:

autorqstr.txt	warnings of deadlocks with autorequesters
consoleIO.txt	copy of the RKM console I/O chapter
diskfont.txt	warning of disk font loading bug
fullfunc.txt	list of #defines, macros, functions
inputdev.txt	preliminary copy of the input device chapter

License information on Workbench distribution license

printer pre-release copy of the chapter on printer drivers, from RKM 1.1 v11fd.txt 'diff' of .fd file changes from version 1.0 to 1.1

v28v1.diff 'diff' of include file changes from version 28 to 1.0

AMICUS Disk 5 **Files from the Amiga Link / Amiga Information Network**

Note that some of these files are old, and refer to older versions of the operating system. These files are from AmigaLink. For a time, Commodore supported Amiga Link, aka AIN, for online developer technical support. It was only up and running for several weeks. These files do not carry a warranty, and are for educational purposes only. Of course, that's not to say they don't work.

A demo of Intuition menus called 'menudemo', in C source

whereis.c	find a file searching all subdirectories
bobtest.c	BOB programming example
sweep.c	sound synthesis example

Assembler files:

mydev.asm	sample device driver
mylib.asm	sample library example
mylib.i	
mydev.i	
asmsupp.i	
macros.i	assembler include files

Texts:

amigatricks	tips on CLI commands
extdisk	external disk specification
gameport	game port spec
parallel	parallel port spec
serial	serial port spec
v1.1update	list of new features in version 1.1
v1.1h.txt	'diff' of include file changes from version

Files for building your own printer drivers, including dospecial.c, epsondata.c, init.asm, printer.c, printer.link, printertag.asm, render.c, and wait.asm. This disk does contain a number of files describing the IFF specification. These are not the latest and greatest files, but remain here for historical purposes. They include text files and C source examples. The latest IFF spec is elsewhere in this library.

AMICUS Disk 6 **IFF Pictures**

This disk includes the DPSlide program, which can view a given series of IFF pictures, and the 'showpic' program, which can view each file at the click of an icon. The pictures include a screen from ArticFox, a Degas dancer, the guys at Electronic Arts, a gorilla, horses, King Tut, a lighthouse, a screen from Marble Madness, the Bugs Bunny Martian, a still from an old movie, the Dire Straits moving company, a screen from Pinball Contruction Set, a TV newcaster, the PaintCan, a world map, a Porsche, a shuttle mission patch, a tyrannosaurus rex, a planet view, a VISA card, and a ten-speed.

AMICUS Disk 7 **DigiView HAM demo picture disk**

This disk has pictures from the DigiView hold-and-modify video digitizer. It includes the ladies with pencils and lollypops, the young girl, the bulldozer, the horse and buggy, the Byte cover, the dictionary page, the robot and Robert. This includes a program to view each picture separately, and all together as separate, slidable screens. The 'seeilbm' program, to turn any screen into an IFF picture.

AMICUS Disk 8

C programs:

Browse	view text files on a disk, using menus S-E-D
Crunch	removes comments and white space from C files, S-E
IconExec	EXECUTE a series of commands from Workbench S-E
PDScreen Dump	dumps Rastport of highest screen to printer
SetAlternate	sets a second image for an icon, when clicked once S-E
SetWindow	makes windows for a CLI program to run under Workbench S-E
SmallClock	a small digital clockin a window menu bar
Scrimper	the screen printer in the fourth AC S-E

Amiga Basic Programs:

(Note: Many of these programs are present on AMICUS Disk 1. Several of these were converted to Amiga Basic, and are included here.)

AddressBook	a simple address book database
Ball	draws a ball
Cload	program to convert Compuserve hex files to binary, S-D
Clue	the game, Intuition driven
ColorArt	art drawing program
DeluxeDraw	the drawing program in the 3rd AC, S-D
Eliza	conversational computer psychologist
Othello	the game, as known as 'go'
RatMaze	3D ratmaze game
ROR	boggling graphics demo
Shuttle	draws 3D pictures of the space shuttle
Spelling	simple spelling program
YoYo	wierd zero-gravity yo-yo demo, tracks yo-yo to the mouse

Executable programs:

3Dcube	Modula-2 demo of a rotating cube
AltIcon	sets a second icon image, displayed when the icon is clicked
AmigaSpell	a slow but simple spell checker, E-D
arc	the ARC file compression progra must-have for telecom, E-D
Bertrand	graphics demo
disksalvage	prog. to rescue trashed disks, E-D
KwikCopy	a quick but nasty disk copy program: ignores errors, E-D
LibDir	lists hunks in an object file E-D
SaveILBM	saves any screen as IFF pic.E-D ??
ScreenDump	shareware screen dump prog, E only
StarTerm	version 2.0, term program, XmodemE-D

Texts:

LatticeMain	tips on fixing _main.c in Lattice
GDiskDrive	make your own 5 1/4 drive
GuruMed	explains the Guru numbers
Lat3.03bugs	bug list of Lattice C version 3.03
MForgeRev	user's view of the MicroForge HD
PrintSpooler	EXECUTE-based print spool prog.

.BMAP files:

These are the necessary links between Amiga Basic and the system libraries. To take advantage of the Amiga's capabilities in Basic, you need these files. BMAPs are included for 'dist', 'console', 'diskfont', 'exec', 'icon', 'intuition', 'layers', 'mathffp', mathieeedoubas', 'mathieeesingbas', 'mathtrans', 'potgo', 'timer' and 'translator'.

AMICUS Disk 9

Amiga Basic Programs:

FlightSim	simple flight simulator program
HuePalette	explains Hue, Saturation, & Intensity
Requester	ex. of requesters from Amiga Basic
ScrollDemo	demonstrates scrolling capabilities
Synthesizer	sound program
WorldMap	draws a map of the world

Executable programs:

Boing!	latest Boing! demo,with selectable speed,E
Brush2C	converts an IFF brush to C data instructions, initialization code, E
Brush2Icon	converts IFF brush to an icon, E
Dazzle	graphics demo, tracks to mouse, E
DeciGEL	assembler program for stopping 68010 errors, S-E-D
Klock	menu-bar clock and date display, E
life	the game of life, E
TimeSet	Intuition-based way to set the time & date
EMEmacs	another Emacs, more oriented to word processing, S-E-D
MyCLI	a CLI shell, works without the Workbench, S-E-D

Texts:

FnctnKeys	read function keys from Amiga Basic
HackerSin	explains how to win the game 'hacker'
Is68010	guide to installing a 68010 in your Amiga
Boing!	latest Boing! demo,with selectablespeed, E
Brush2C	converts an IFF brush to C data instructions, initialization code, E
Brush2Icon	converts IFF brush to an icon, E
Dazzle	graphics demo, tracks to mouse, E
DeciGEL	assembler program for stopping 68010 errors, S-E-D
Klock	menu-bar clock and date display, E
life	the game of life, E
TimeSet	Intuition-based way to set the time date,
EMEmacs	another Emacs, more oriented to word processing, S-E-D
MyCLI	a CLI shell, works without the Workbench, S-E-D

Texts:

FnctnKeys	explains how to read function keys from Amiga Basic
HackerSin	explains how to win the game 'hacker'
Ist68010	guide to installing a 68010 in your Amiga
PrinterTip	sending escape sequences to your printer
StartupTip	tips on setting up your startup-sequence file
XfmrReview	list of Transformer programs that work

Printer Drivers:

Printer drivers for the Canon PJ-1080A, the C Itoh Prowriter, an improved Epson driver that eliminates streaking, the Epson LQ-800, the Gemini Star-10, the NEC 8025A, the Okidata ML-92, the Panasonic KX-P10xx family, and the Smith-Corona D300, with a document describing the installation process.

AMICUS Disk 10 **Instrument sound demos**

This is an icon-driven demo, circulated to many dealers. It includes the sounds of an acoustic guitar, an alarm, a banjo, a bass guitar, a boink, a calliope, a car horn, claves, water drip, electric guitar, a flute, a harp arpegio, a kickdrum, a marimba, a organ minor chord, people talking, pigs, a pipe organ, a Rhodes piano, a saxophone, a sitar, a snare drum, a steel drum, bells, a vibrophone, a violin, a wailing guitar, a horse whinny, and a whistle.

AMICUS Disk 11

C programs

dirutil	Intuition-based, CLI replacement manager S-E
cpri	shows and adjusts priority of CLI processes, S-E
ps	shows info on CLI processes, S-E
vidtex	displays Compuserve RLE pics, S-E

AmigaBasic programs

pointered	pointer and sprite editor program
optimize	optimization ex ample from AC article
calendar	large, animated calendar, diary and date book program
amortize	loan amortizations
brushtoBOB	converts small IFF brushes to AmigaBasic BOB OBJECTS
grids	draw and play waveforms
hilbert	draws Hilbert curves
madlib	mad lib story generator
mailtalk	talking mailing list program
meadows3D	3D graphics program, from A C™ article
mousetrack	mouse tracking example in hires mode
slot	slot machine game
tictactoe	the game
switch	pachinko-like game
weird	makes strange sounds

Executable programs

cp	unix-like copy command, E
cls	screen clear, S-E
diff	unix-like stream editor uses 'diff' output to fx files
pm	chart recorder performances indicator

Assembler programs

cls	screen clear and CLI arguments example

Modula-2

trails	moving-worm graphics demo
caseconvert	converts Modula-2 keywords to uppercase
Forth	Breshehan circle algorithm example
Analyze	12 templates for the spreadsheet Analyze

There are four programs here that read Commodore 64 picture files. They can translate Koala Pad, Doodle, Print Shop and News Room graphics to IFF format. Getting the files from your C-64 to your Amiga is the hard part.

AMICUS Disk 12

Executable programs

blink	'alink' compatible linker, but faster, E-D
clean	spins the disk for disk cleaners, E-D
epsonset	sends Epson settings to PAR from menu E-D
showbig	view hi-res pics in low-res superbitmap, E-D
speaktime	tell the time, E-D
undelete	undeletes a file, E-D
cnvapidhm	converts Apple][low, medium and high res pictures to IFF, E-D
menued	menu editor produces C code for menus, E-D
quick	quick disk-to-disk nibble copier, E-D
quickEA	copies Electronic Arts disks, removes protection, E-D
txed 1.3	demo of text editor from Microsmiths,E-D

C programs

spin3	rotating blocks graphics demo, S-E-D
popcli	start a new CLI at the press of a button, like Sidekick, S-E-D
vsprite	VSprite example code from Commodore, S-E-D
AmigaBBS	Amiga Basic bulletin board prog., S-D

Assembler programs

star10	makes star fields like Star Trek intro,S-E-D

Pictures

Mount Mandelbrot	3D view of Mandelbrot set
Star Destroyer	hi-res Star Wars starship
Robot	robot arm grabbing a cylinder

Texts

vendors	Amiga vendors, names, addresses
cardco	fixes to early Cardco memory boards
cinclude	cross-reference to C include files
mindwalker	clues to playing the game well
slideshow	make your own slideshows from the Kaleidoscope disk

AMICUS Disk 13

Amiga Basic programs

Routines from Carolyn Scheppner of CBM Tech Support, to read and display IFF pictures from Amiga Basic. With documentation. Also included is a program to do screen prints in Amiga Basic, and the newest BMAP files, with a corrected ConvertFD program. With example pictures, and the SaveILBM screen capture program.

Routines to load and play FutureSound and IFF sound files from Amiga Basic, by John Foust for Applied Visions. With documentation and C and assembler source for writing your own libraries, and interfacing C to assembler in libraries. With example sound.

Executable programs

gravity	Sci Amer Jan 86 gravitation graphic simulation, S-E-D

Texts

MIDI	make your own MIDI instrument interface, with documentation and a hi-res schematic picture.

AMICUS Disk 14

Several programs from Amazing Computing issues:

Tools

Dan Kary's	C structure index program, S-E-D

Amiga Basic programs:

BMAP Reader	by Tim Jones
IFFBrush2BOB	by Mike Swinger
AutoRequester	example
DOSHelper	Windowed help system for CLI commands, S-E-D
PETrans	translates PET ASCII files to ASCII files, S-E-D
C Squared	Graphics program from Scientific American, Sept 86, S-E-D
crlf	adds or removes carriage returns from files, S-E-D
dpdecode	decrypts Deluxe Paint, remo
ves copy	protection, E-D
queryWB	asks Yes or No from the user returns exit code, S-E
vc	VisiCalc type spreadsheet, no mouse control, E-D
view	views text files with window and
slider	gadget, E-D

Oing, Sproing, yaBoing, Zoing are sprite-based
Boing! style demos, S-E-D

CLIClock, sClock, wClock are window border clocks, S-E-D

Texts

An article on long-persistance phospor monitors, tips on making brushes of odd shapes in Deluxe Paint, and recommendations on icon interfaces from Commodore-Amiga.

AMICUS Disk 15

The C programs include:

'pr'	a file printing utility, which can print files in the background, and with line numbers and control character filtering.
'fm'	displays a chart of the blocks allocated on a disk.
'Ask'	questions an 'execute' file, returns an error code to control the execution in that batch file
'Stat'	an enhanced version of AmigaDOS 'status' command.
'Dissolve'	random-dot dissolve demo displays IFF picture slowly, dot by dot, in a random fashion.
'PopCLI2'	invoke new CLI window at the press of a key.

The executable programs include:

'Form'	file formatting program through the printer driver to select print styles
'DiskCat'	catalogs disks, maintains, sorts,merges lists of disk files
'PSound'	SunRize Industries' sampled sound editor & recorder
'Iconmaker'	makes icons for most programs
'Fractals'	draws great fractal seascapes and mountain scapes.
'3D Breakout'	3D glasses, create breakout in a new dimension
'AmigaMonitor'	displays lists of open files,
memory use,	tasks, devices and ports in use.
'Cosmoroids'	version of 'asteroids' for the Amiga.
'Sizzlers'	high resolution graphics demo written in Modula 2.

Texts:

'ansi.txt'	explains escape sequences the CON: device responds to.
'FKey'	includes template for making paper to sit in the tray at the top of the Amiga keyboard.

'Spawn' programmer's document from Commodore Amiga, describs ways to use the Amiga's multitasking capabilities in your own programs.

AmigaBasic programs:

'Grids'	draw sound waveforms, and hear them played.
'Light'	a version of the Tron light-cycle video game.
'MigaSol'	a game of solitaire.
'Stats'	program to calculate batting averages
'Money'	"try to grab all the bags of money that you can."

AMICUS 15 also includes two beautiful IFF pictures, of the enemy walkers from the ice planet in Star Wars, and a picture of a cheetah.

AMICUS Disk 16

'juggler' demo by Eric Graham. a robot juggler bouncing three mirrored balls, with sound effects. Twenty-four frames of HAM animation are flipped quickly to produce this image. You control the speed of the juggling. The author's documentation hints that this program might someday be available as a product.

IFF pictures

parodies of the covers of Amiga World and Amazing Computing magazines.

C programs:

'Inputhandler'	example of making an input handler.
'FileZap3'	binary file editing program
'ShowPrint'	displays IFF picture, and prints it.
'Gen'	program indexes and retrieves C structures and variables declared in the Amiga include file system.

Executable Programs:

'FixHunk2'	repairs an executable program file for expanded memory
'ms2smus'	converts Music Studio files to IFF standard 'SMUS' format. I have heard this program might have a few bugs, especially in regards to very long songs, but it works in most cases.
'Missile'	Amiga version of the 'Missile Command' video game,

This disk also contains several files of scenarios for Amiga Flight Simulator II. By putting one of these seven files on a blank disk, and inserting it in the drive after performing a special command in this game, a number of interesting locations are preset into the Flight Simulator program. For example, one scenario places your plane on Alcatraz, while another puts you in Central Park

AMICUS Disk 17

Telcommunications disk whuch contains six terminal programs.

"Comm" V1.33	term prog. with Xmodem, WXmodem,
"ATerm" V7.2	term prog. includes Super Kermit
"VT-100"V2.6	Dave Wecker's VT-100 emulator with Xmodem,Kermit, and scripting
"Amiga Kermit"	V4D(060) port of the Unix C-Kermit
"VTek" V2.3.1	Tektronix graphics terminal emulator based on the VT-100 prog. V2.3 and contains latest 'arc' file compression
"AmigaHost"	V0.9 for Compuserve. Includes RLE graphics abilities & CIS-B file transfer protocol.
"FixHunk"	expansion memory necessity
"FixObj"	removes garbage characters from modem received files
"Txt"	filters text files from other systems to be read by the Amiga E.C.
"addmem"	executeable version for use with mem expansion article in AC v2..1
'arc'	file documentation and a basic tutorial on un 'arcing files
"arcre"	for makeing "arc" files E.C.

AMICUS Disk 18

Logo	Amiga version of the populacomputer language, with example programs, E-D
Tv"Text	Demo version of the TV"Text character generator
PageSetter	Freely distributable versions of the updated PagePrint and PageIFF programs for the PageSetter desktop publishing package.
FullWindow	Resizes any CLI window using only CLI commands, E-D
Life3d	3-D version of Conway's LIFE program, E-D
Defdisk	CLI utility to re-assign a new Workbench disk, S-E-D
Calendar.WKS	Lotus-compatible worksheet that makes calendars
SetKey	Demo of keyboard key re-programmer, with IFF picture to make function key labels, E-D
VPG	Video pattern generator for aligning monitors, E-D
HP-10C	Hewlett-Packard-like calculator, E-D
SetPrefs	Change the Preferences settings on the fly, in C, S-E-D
StarProbe	Program studies stellar evolution. C source included for Amiga and MS-DOS, S-E-D
ROT	C version of Colin French's AmigaBasic ROT program from Amazing Computing. ROT edits and displays polygons to create three dimensional objects. Up to 24 frames of animation can be created and displayed. E-D
Scat	Like Ing, windows on screen run away from the mouse, E-D
DK	Decays" the CLI window into dust, in Modula 2, S-E-D
DropShadow2	Adds layered shadows to Workbench windows, E-D

AMICUS Disk 19

This disk carries several programs from Amazing Computing. The IFF pictures on this disk include the Amiga Wake part T-shirt logo, a sixteen-color hi-res image of Andy Griffith, and five Amiga Live! pictures from the Amazing Stories episode that featured the Amiga.

Solve	Linear equation solver in assembly language, S-E-D
Gadgets	Bryan Catley's AmigaBasicS-Dtorial,
Household	Bryan Catley's AmigaBasic household inventory program, S-D
Waveform	Jim Shields' Waveform WoAmigaBasic, S-D
DiskLib	John Kennan's AmigaBasic disk librarian program, S-D
Subscripts	Ivan Smith's AmigaBasic subscript example, S-D
String, Boolean	C programs and executables for Harriet Maybeck Tolly's Intuition tutorials, S-E-D
Skinny C	Bob Riemersma's example for making small C programs, S-E-D
COMAL.h	Make C look like COMAL HS-Der file,
EmacsKey	Makes Emacs function key definitions by Greg Douglas, S-D
AMon 1.1	Snoop on system resource use, E-D
BTE	Bard's Tale character editor, E-D
Size	CLI program shows the size of a given set of files, E-D
WinSize	CLI window utility resizes current window, S-E-D

AMICUS Disk 20

Compactor, Decoder Steve Michel AmigaBasic tools, S-D

BobEd	BOB and sprite editor written in C,S-E-D
SpriteMasterII	Sprite editor and animator by Brad Kiefer, E-D
BlitLab	Blitter chip exploration C program by Tomas Rokicki, S-E-D
FPic	Image processing program by Bob Bush loads and saves IFF images, changes them with several techniques, E-D
Bankn	Complete home banking program, balance your checkbook! E-D

AMICUS Disk 21

Target	Makes each mouse click sound like a gunshot, S-E-D
Sand	Simple game of sand that follows the mouse pointer, E-D
PropGadget	Harriet Maybeck Tolly's proportional gadget example, S-E
EHB	Checks to see if you have extra-half-bright graphics, S-E-D
Piano	Simple piano sound program
CelScripts	Makes cel animation scripts for Aegis Animator, in AmigaBasic

This disk has electronic catalogs for AMICUS disks 1 to 20 and Fish disks 1 to 80. They are viewed with the DiskCat program, included here.

AMICUS Disk 22

Cycles	Light cycle game, E-D
Show_PrintII	Views and prints IFF pictures, including larger than screen
PrtDrvGen2.3	Latest version of a printer driver generator
Animations	VideoScape animations of planes and boing ball
Garden	Makes fractal gardenscapes
BasicSorts	Examples of binary search and insertion sort in AmigaBasic

AMICUS Disk 23

An AMICUS disk completely dedicated to music on the Amiga. This disk contains two music players, songs, instruments, and players to bring the thrill of playing "Big Sound" on your Amiga

Instruments	a collection of 25 instruments for playing and creating music. The collection ranges from Cannon to Marimba
List INSTR	program to list the instruments DMCS will not load as well as list the origins for any instrument.
Music	a collection of 14 Classical pieces
1812Overture	The 16 minute classical feature complete with Cannon!

Three Amiga Music Players:

SMUSPlay
MusicCraft2SMUS
MusicStudio2SMUS

AMICUS Disk 24

Sectorama	A disk sector editor for any AmigaDOS file-structured device, recover files from a trashed hard disk. By David Joiner of MicroIllusions
Iconize	Reduces the size of IFF images, companion program, Recolor, remaps the palette colors of one picture to use the palette colors of another. Using these programs and a tool to convert IFF brushes to Workbench icons, make icons look like miniatures of the pictures.
CodeDemo	Modula-2 program converts assembler object files to inline CODE statements. Comes with a screen scrolling example
AmiBug	Workbench hack makes the same fly walk across the screen at random intervals. Otherwise, completely harmless.
BNTools	Three examples of assembly language code from Bryce Nesbitt: 1. SetLace,prog to switch interlace on&off. 2. Why, replace AmigaDOS CLI Why 3. LoadIt, prog to load a file into memory until a reboot. (Only the most esoteric hackers will find LoadIt useful.)
Monolace	CLI program resets Preferences to several colors of monochrome & interlace screens. C source is included, works with DisplayPref, a CLI program which displays the current Preferences settings.
BoingMachine	A ray-traced animation of a perpetual motion Boing-making machine, includes the latest version of the Movie program, which has the ability to play sounds along with the animation. By Ken Offer
Daisy	Example of using the translator and narrator devices to make the Amiga talk. It is written in C.
QuickFlix	Script-driven animation and slideshow program flips through IFF images.
BMon	System monitor AmigaBasic program ; perform simple manipulations of memory.
Moose	Random background program, a small window opens with a moose resembleing Bullwinklesaying witty phrases user definable.
DGCS	Deluxe Grocery Construction Set, simple Intuition-based prog for assembling and printing a grocery list.

The Virus Check directory holds several programs relating to the software virus that came to the US from pirates in Europe as detailed in Amazing Computing V2.12. Bill Koester's full explanation of the virus code is included. One program checks for the software virus on a Workbench disk; the second program checks for the virus in memory, which could infect other disks.

AMICUS Disk 25

Nemesis	Graphics demo pans through space towards the mythical dark twin of the sun with wonderful music and space graphics.

The KickPlay directory holds text that describes several patches to the Kickstart disk. For Amiga 1000 hackers who feel comfortable patching a disk in hexadecimal, KickPlay offers the chance to automatically do an ADDMEM for old expansion memory, as well as the ability to change the picture of the "Insert Workbench" hand. A program is also included for restoring the correct checksum of the Kickstart disk.

KeyBird	BASIC prog edits keymaps, adjust the Workbench keymaps or create your own.

8ColorWB	Modifies the Workbench so three bitplanes are used, icons can have eight colors, instead of four, eight-color icons are included. Public domain program "zapicon" or "brush2icon" converts eight-color IFF brushes to icons, to use Deluxe Paint to make icons for this new Workbench.
BrushIcon	Converts brushes to icons (bizarr docs).
Egraph	Graphing prog reads [x,y] values from a file and displays them on the screen, similar to the same-named Unix program.
Keep 1.1	Message-managing program for telecommunications, lets you save messages from an online transcript to another file, understands the message format of the national networks and several types of bulletin board software. Moves through the transcript and save messages
Kill.fastdir	Speed up directory access, it creates a small file in each directory on a disk which contains the information about the files, will also remove all the "fastdir" files from each directory. by CLImate's authors

The LaceWB program changes between interlace and non-interlace Workbench. Previously, you were forced to reboot after changing Preferences to an interlaced screen. This program flips between the normal and extended screen heights.

PW_Utility	A shareware utility for ProWrite users, changes margin settings and font types.
Guru	A CLI program, prints out probable causes for Guru mediations; C source included.
DiskWipe	Latest from Software Distillery, removes files from directories or disk drives, much faster than "delete."
Snow	AmigaBasic makes snowflake designs.
Mlist	Mailing list database.
Softballstats	Maintain softball statistics/ team records.
Dodge	Short Modula-2 program moves the Workbench screen around after a period of time, prevents monitor burn-in.

AMICUS Disk 26

Todor Fay's SoundScape module code from his Amazing Computing articles. The source to Echo, Chord, TX, and VU is included. The Lattice and Manx C source code is here, along with the executable modules.

ImageMaker	Interesting tool edits Image structures for C, loads & saves C code directly.
Claz2	Update of prog to convert IFF images to PostScript files for printing on laser printers
SDBackup	Hard disk backup prog with Lempel-Ziv compression to reduce the necessary number of disks.
TCB	Prints information about tasks and processes in the system; assembler source is included.
FunBut	Lets a function key act like a rapid series of left mouse button events.
DC	A handy program for people who use an Amiga 1020 5 1/4 inch drive as an AmigaDOS floppy. A Workbench program that sends a DiskChange signal to the operating system: instead of typing "diskchange df2:" over and over again, just click on the icon. C source included.
System config	File makes screen 80 columns wide of text in the Scribble! word processor.
Dick2Ram	2 programs to move the Scribble! spelling dictionary to and from the RAM disk.
Lexical	Analyzes a text file and gives the Gunning-Fog, Flesch, and Kincaid indices which measure readability.
HexDump	Modula-2 program to display memory locations in hexadecimal.
Tartan	AmigaBasic; design Tartan plaids.
DirMaster	Disk catalog program.
BMP	plays 8SVX sampled sounds in the background while something else is happening in the Amiga, as your Amiga is booting, for example.
ShowPt	CLI program changes your pointer to a given pointer.

AMICUS 26 also has a collection of mouse pointers, & Workbench program to display them

Fred Fish Public Domain Software

Fred Fish Disk 1:

amigademo	Graphical benchmark for comparing amigas.
amigaterm	simple communications program with Xmodem
balls	simulation of the "kinetic thingy" with balls on strings
colorful	Shows off use of hold-and-modify mode.
dhrystone	Dhrystone benchmark program.
dotty	Source to the "dotty window" demo on the Workbench disk.
freedraw	A small "paint" type program with lines, boxes, etc.
gad	John Draper's Gadget tutorial program
gfxmem	Graphical memory usage display prog.
halfbrite	demonstrates "Extra-Half-Brite" mode, if you have it
hello	simple window demo
latffp	accessing the Motorola Fast Floating Point library from C
palette	Sample prog. to design color palettes.
trackdisk	Demonstrates use of the trackdisk driver.
requesters	John Draper's requester tutorial and example program.
speech	Sample speech demo program. Stripped down "speechtoy".
speechtoy	Another speech demo program.

Fred Fish Disk 2:

alib	Object module librarian.
cc	Unix-like frontend for Lattice C compiler.
dbug	Macro based C debugging package. Machine independent.
make	Subset of Unix make command.
make2	Another make subset command.
microemacs	Small version of emacs editor, with macros, no extensions
portar	Portable file archiver.
xrf	DECUS C cross reference utility.

Fred Fish Disk 3:

gothic	Gothic font banner printer.
roff	A "roff" type text formatter.
ff	A very fast text formatter
cforth	A highly portable forth implementation. Lots of goodies.
xlisp	Xlisp 1.4, not working correctly.

Fred Fish Disk 4:

banner	Prints horizontal banner
bgrep	A Boyer-Moore grep-like utility
bison	GNU Unix replacement 'yacc', not working.
bm	Another Boyer-Moore grep-like utility
grep	DECUS grep
kermit	simple portable Kermit with no connect mode.
MyCLI	Replacement CLI for the Amiga. V. 1.0
mandel	A Mandelbrot set program, by Robert French and RJ Mical

Fred Fish Disk 5

cons	Console device demo program with supporting macro routines.
freemap	Creates a visual diagram of free memory
input.dev	sample input handler, traps key or mouse events
joystick	Shows how to set up the gameport device as a joystick.
keyboard	demonstrates direct communications with the keyboard.
layers	Shows use of the layers library
mandelbrot	IFF Mandelbrot program
mouse	hooks up mouse to right joystick port
one.window	console window demo
parallel	Demonstrates access to the parallel port.
printer	opening and using the printer, does a screen dump, not working
print.support	Printer support routines, not working.
proctest	sample process creation code, not working
region	demos split drawing regions
samplefont	sample font with info on creating your own
serial	Demos the serial port
singlePlayfield	Creates 320 x 200 playfield
speechtoy	latest version of cute speech demo
speech.demo	simplified version of speechtoy, with IO requests
text.demo	displays available fonts
timer	demos timer.device use
trackdisk	demos trakcdisk driver

Fred Fish Disk 6:

compress	like Unix compress, a file squeezer
dadc	analog clock impersonator
microemacs	upgraded version of microemacs from disk 2
mult	removes multiple occuring lines in files
scales	demos using sound and audio functions
setparallel	Allows changing parallel port parameters
setserial	Allows changing serial port parameters.
sortc	quicksort based sort program, in C
stripc	Strips comments and extra whitespace from C source

Fred Fish Disk 7:

This disk contains the executables of the game Hack V 1.0.1.

Fred Fish Disk 8:

This disk contains the C source to Hack on disk 7.

Fred Fish Disk 9:

moire	Draws moire patterns in black and white
MVP-FORTH	Mountain View Press Forth, version 1.00.03A. A shareware version of FORTH from Fantasia Systems.
proff	a more powerful text formatting program
setlace	Prog to toggle interlace mode on and off
skewb	a rubic's cube type demo
sparks	moving snake Graphics demo

Fred Fish Disk 10:

conquest	An interstellar adventure simulation game
dehex	convert a hex file to binary
filezap	Patch program for any type of file.
fixobj	Strip garbage off Xmodem transferred files.
iff	Routines to read and write iff format files.
ld	simple directory program
ls	Minimal UNIX ls, with Unix-style wildcarding, in C
sq,usq	file squeeze and unsqueeze
trek73	Star Trek game
yachtc	Dice game.

Fred Fish Disk 11:

dpslide	slide show program for displaying IFF images with miscellaneous pictures

Fred Fish Disk 12:

amiga3d	Shows a rotating 3 dimensional solid "Amiga sign".
ArgoTerm	a terminal emulator program, written in assembler
arrow3d	Shows a rotating 3 dimensional wire frame arrow.
ld4	directory listing program
IconExec	
SetWindow	two progs for launching progs from Workbench, presently only works under CLI.
SetAlternate	Makes an icon show a second image when clicked once
StarTerm	terminal emulator, with ASCII Xmodem, dialer, more.

Fred Fish Disk 13:

A Bundle of Basic programs, including:

Jpad	toybox	ezspeak	mandlebrot
xmodem	3dsolids	addbook	algebra
ror	amgseq1	amiga-copy	band
bounce	box	brickout	canvas
card1	circle	colorcircles	Copy
cubes1	cutpaste	datedogstar	
dragon	draw	dynamictriangle	
Eliza	ezterm	fillibuster	fractal
fscape	gomoku	dart	haiku
hal9000	halley	hauntedM	hidden
join	loz	mandel	menu
minipaint	mouse	Orthello	patch
pena	pinwheel	gboxrandom-circles	
Readme	rgb	rgbtest	Rord
sabotage	salestalk	shades	shapes
shuttle			
sketchpad	spaceart	speakspeach	
speecheasy	spell	sphere	
spiral	striper	superpad	suprshr
talk	terminal		
termtest	tom	topography	triangle
wheels	xenos	xmostriper	

(note: some programs are Abasic, most are Amigabasic, and some programs are presented in both languages)

Fred Fish Disk 14:

amiga3d	update of #12, includes C source to a full hidden surface removal and 3D graphics
beep	Source for a function that generates a beep sound
dex	extracts text from within C source files
dimensions	demonstrates N dimensional graphics
filezap	update of disk 10, a file patch utility
gfxmem	update of disk 1, graphic memory usage indicator
gi	converts IFF brush files to Image struct, in C text.
pdterm	simple ANSI VT100 terminal emulator, in 80 x 25 screen
shell	simple Unix 'csh' style shell
termcap	mostly Unix compatible 'termcap' implementation.

Fred Fish Disk 15:

Blobs	graphics demo, like Unix 'worms'
Clock	simple digital clock program for the title bar
Dazzle	An eight-fold symmetry dazzler program. Really pretty!
Fish	double buffered sequence cycle animation of a fish
Monopoly	A really nice monopoly game written in AbasiC.
OkidataDump	Okidata ML92 driver and WorkBench screen dump program.
Polydraw	A drawing program written in AbasiC.
Polyfractals	A fractal program written in AbasiC.

Fred Fish Disk 16:

A complete copy of the latest developer IFF disk

Fred Fish Disk 17:

The NewTek Digi-View video digitizer HAM demo disk

Fred Fish Disk 18:

AmigaDisplay	dumb terminal program with bell, selectable fonts
Ash	Prerelease C Shell-like shell program, history, loops, etc.
Browser	wanders a file tree, displays files, all with the mouse
MC68010	docs on upgrading your Amiga to use a MC68010
Multidim	rotate an N dimensional cube with a joystick
PigLatin	SAY command that talks in Pig Latin
Scrimper	Screen image printer
Xlisp1.6	source, docs, and execut for a Lisp interpret.

Fred Fish Disk 19:

BlackJack	text-oriented blackjack game
JayMinerSlides	Slides by Jay Miner, Amiga graphics chip designer, showing flowchart of the Amiga internals, in 640 x 400.
Keymap_Test	test program to test the key mapping routines
LockMon	Find unclosed file locks, for programs that don't clean up.

Fred Fish Disk 20:

AmigaToAtari	converts Amiga object code to Atari form
DiskSalv	program to recover files from a trashed AmigaDOS disk.
Hash	example of the AmigaDOS disk hashing function
Hd	Hex dump utility ala Computer Language magazine, April 86
MandelBrots	Mandelbrot contest winners
MultiTasking	Tutorial and examples for Exec level multitasking
Pack	strips whitespace from C source
PortHandler	sample Port-Handler program that performs. Shows BCPL environment
Random	Random number generator in assembly, for C or assembler.
SetMouse2	sets the mouse port to right or left
SpeechTerm	terminal Emulator with speech capabilites, XModem
TxEd	Demo editor from Microsmith's Charlie Heath

Fred Fish Disk 21

This is a copy of Thomas Wilcox's Mandelbrot Set Explorer disk. Very good!

Fred Fish Disk 22

This disk contains two new "strains" of microemacs.

Lemacs	version 3.6 by Daniel Lawrence. For Unix V7, BSD 4.2, Amiga, MS-DOS, VMS. Uses Amiga function keys, status line, execute, startup files, more.
Pemacs	By Andy Poggio. New features include <ALT> keys as Meta keys, mouse support, higher priority, backup files, word wrap, function keys.

Fred Fish Disk 23

Disk of source for MicroEmacs, several versions for most popular operating systems on micros and mainframes. For people who want to port MicroEmacs to their favorite machine.

Fred Fish Disk 24:

Conques	interstaller adventure simulation game
Csh	update to shell on Disk 14, with built in commands,named variables substitution.
Modula-2	A pre-release version of the single pass Modula-2 compiler originally developed for Macintosh at ETHZ. This code was transmitted to the AMIGA and is executed on the AMIGA with a special loader. Binary only.

Fred Fish Disk 25

Graphic Hack	A graphic version of the game on disks 7 and 8 This is the graphics-oriented Hack game by John Toebes. Only the executable is present.

Fred Fish Disk 26

UnHunk	Processes the Amiga "hunk" loadfiles. Collect code, data, and bss hunks together, allows individual specificatio of code, data, and bss origins, and generates binary file with format reminiscent of Unix "a.out" format. The output file can be easily processed by a separate program to produce Motorola "S-records" suitable for downloading to PROM programmer. By Eric Black.
C-kermit	Port of the Kermit file transfer program and server.
Ps	Display and set process priorities
Archx	Yet another program for bundling up text files and mailing or posting them as a single file unit.

Fred Fish Disk 27

ABdemos	Amiga Basic demos; Caroly Scheppner.
NewConvertFD	creates .bmaps from fd files.
BitPlanes	finds addresses of and writes to bitplanes of the screen's bitmap.
AboutBmaps	A tutorial on creation and use of bmaps.
LoadILBM	loads and displays IFF ILBM pics.
LoadACBM	loads and displays ACBM pics.
ScreenPrint	creates a demo screen and dumps it to a graphic printer.
Disassem	Simple 68000 disassembler. Reads standard Amiga object files and disassembles the code sections. Data sections are dumped in hex. The actual disassember routines are set up to be callable from a user prog so instructions in memory can be disassembled dynamically. By Bill Rogers.
DvorakKeymap	Example of a keymap structure for the Dvorak keyboard layout. Untested but included because assembly examples are few and far between. By Robert Burns
Hypocycloids	Spirograph, from Feb. 84 Byte.
LinesDemo	Example of proportional gadgets to scroll a SuperBitMap.
MemExpansion	Schematics and directions for building your own homebrew 1 Mb memory expansion, by Michael Fellinger.
SafeMalloc	Program to debug 'malloc()' calls
ScienceDemos	Convert Julian to solar and sidereal time, stellar positions and radial velocity epoch calculations and Galilean satellite plotter. By David Eagle.

Fred Fish Disk 28

ABasic games by David Addison: Backgammon , Cribbage, Milestone, and Othello

Cpp	DECUS 'cpp' C preprocessor, & a modified 'cc' that knows about the 'cpp', for Manx C.
Shar	Unix-compatible shell archiver, for packing files for travel.
SuperBitMap	Example of using a ScrollLayer, syncing SuperBitMaps for printing, and creating dummy RastPorts.

Fred Fish Disk 29

AegisDraw Demo	Demo program without save and no docs.
Animator Demo	Player for the Aegis Animator files
Cc	Unix-like front-end for Manx C
Enough	Tests for existence of system resources, files, and devices
Rubik	Animated Rubik's cube program
StringLib	
Vt100	VT-100 terminal emulator with Kermit and Xmodem protocols

Fred Fish Disk 30

Several shareware programs. The authors request a donation if you find their program useful, so they can write more software.

BBS	an Amiga Basic BBS by Ewan Grantham
FineArt	Amiga art
FontEditor	edit fonts, by Tim Robinson
MenuEditor	Create menus, save them as C source, by David Pehrson
StarTerm3.0	Very nice telecom by J. Nangano

(Fred Fish Disk#30 is free if requested when ordered with at least three other disks from the collection.)

Fred Fish Disk 31

Life	Life game, uses blitter to do 19.8 generations a second.
Mandelbrot	Version 3.0 of Robert French's program.
MxExample	Mutual exclusion gadget example.
RamSpeed	Measure relative RAM speed, chip and fast.
Set	Replacement for the Manx "set" command for environment variables,with improvements.
Tree	Draws a recursive tree, green leafy type, not files.
TxEd	Crippled demo version of Microsmith's text editor, TxEd.
VDraw	Full-featured drawing program by Stephen Vermeulen.
Xicon	Invokes CLI scripts from icon
Ticon	Displays text files from an icon.

Fred Fish Disk 32

Address	Extended address book, AmigaBASIC
Calendar	Calendar/diary program, AmigaBASIC
DosPlus1	First volume of CLI oriented developer tools
DosPlus2	2nd volume of CLI oriented developer tools.
Executables only:	
MacView	Views MacPaint pics in Amiga low or high res, no sample pictures, by Scott Evernden.
Puzzle	Simulation of puzzle with moving squares.
ShowHAM	View HAM pictures from CLI.
Solitaire	ABasiC games of Canfield and Klondike, from David Addison.
Spin3	Graphics demo of spinning cubes, double-buffered example.
Sword	Sword of Fallen Angel text adventure game written in Amiga Basic.
Trails	Leaves a trail behind mouse, in Modula-2

Fred Fish Disk 33

3dstars	3d version of the "stars" program below.
Bigmap	Low-level graphics example scrolls bitmap with ScrollVPort.
Dbuf.gels	Double-buffered animation example for BOBs and VSprites.
DiskMapper	Displays sector allocation of floppy disks.
MemView	View memory in real time, move with joystick.
Oing	Bouncing balls demo
Sproing	Oing, with sound effects.
ScreenDump	Dumps highest screen or window to the printer.
Sdb	Simple database program from a DECUS tape.
Stars	Star field demo, like Star Trek.
TermPlus	Terminal program with capture, library, function keys, Xmodem, CIS-B protocols.
Vt100	Version 2.0 of Dave Wecker's VT-100 emulator, with scripts & function

Fred Fish Disk 34

Alint	Support files for Gimpel's 'lint' syntax checker
Blink	PD 'alink' compaible linker,faster,better.
Browser	Updated to FF 18 'browser', in Manx, with scroll bars, bug fixes.
Btree	b-tree data structure examples
Btree2	Another version of 'btree'
Calendar	Appointment calendar with alarm.
Less	File viewer, searching, position by percent, line number.
NewFonts	Set of 28 new Amiga fonts from Bill Fischer
Pr	Background print utility, style options, wildcards.
Requester	Deluxe Paint-type file requester, with sample.

Fred Fish Disk 35

ASendPacket	C example of making asynchronous I/O calls to a DOS handler, written by C-A
ConsoleWindow	C example of getting the Intuition pointer a CON: or RAW: window, for 1.2, by C-A.
DrUtil	Walk the directory tree, do CLI operations from menus
DrUtil2	Another variant of Drutil.
FileRequester	Lattice C file requester module, with demo driver, from Charlie Heath.
MacView	Views MacPaint pictures in Amiga low or high res, with sample pictures, by Scott Evernden.
Plop	Simple IFF reader program
PopCLI	Sidekick-style program invokes a new CLI, with automatic screen blanking.
QuickCopy	Devenport disk copiers duplicate copy-protected disks.
ScrollPf	Dual playfield example, from C-A, shows 400 x 300 x 2 bit plane playfield on a 320 x 200 x 2 plane deep playfield.
SendPacket	General purpose subroutine to send AmigaDos packets.
SpriteMaker	Sprite editor, can save work as C data structure. Shareware by Ray Larson.
Tracker	Converts any disk into files, for electronic transmission. Preserves entire file structure. Shareware by Brad Wilson.
TriClops 3-D	space invasion game, formerly commercial, now public domain. From Geodesic Publications.
Tsize	Print total size of all files in subdirectories.
Unifdef	C preprocessor to remove given #ifdef'd sections of a file, leaving the rest alone. By Dave Yost
Vttest	VT-100 emulation test program. Requires a Unix system.

Fred Fish Disk 36

Acp	Unix-like 'cp' copy program
Clock	Updated version of clock on disk 15.
Csh	Manx 'csh'-like CLI, history, variables, etc.
DietAid	Diet planning aid organizes recipes, calories
Echo	Improved 'echo' command with color, cursor addressing
FixHunk	Fixs programs to let them run in external memory.
Fm	Maps the sectors a file uses on the disk.
KickBench	Docs, program to make a single disk that works like a Kickstart and Workbench.
Lex	Computes Fog, Flesch, and Kincaid readability of text files.
TunnelVision	David Addison ABasic 3D maze perspective game.
Vc	Visicalc-like spreadsheet calculator program.
Vt100	Version 2.2 of Dave Wecker's telecom program
YaBoing	Oing! style game program shows sprite collision detects

Fred Fish Disk 37

This disk is a port of Timothy Budd's Little Smalltalk system, done by Bill Kinnersley at Washington State University.

Fred Fish Disk 38

CSquared	Sep 86 Sci American, Circle Squared algorithm
FixObj	Strips garbage off Xmodem transfered object files
Handler	AmigaDOS handler (device) example from C-A
Hp-10c	Mimics a HP-10C calculator, written in Modula-2
IFFEncode	Saves the screen as an IFF file
IffDump	Dumps info about an IFF file
Jsh	BDS C-like CLI shell
NewStat	STATUS-like program, shows priority, processes
Reversi	Game of Reversi, version 6.1
UUdecode	Translate binary files to text, Unix-like programs
Vdraw	Drawing program, version 1.14
VoiceFiler	DX MIDI synthesizer voice filer program
Window	Example of creating a D OS window on a custom screen

Fred Fish Disk 39

AnsiEcho	'echo', 'touch', 'list', 'cls' written in assembler.
Display	Displays HAM images from a ray-tracing program, with example pictures.
Driver	Example device driver source, acts like RAM: disk
Xlisp	XLisp 1.7, executable only

Fred Fish Disk 40

Ahost	Terminal emulator with Xmodem, Kermit and CIS B protocols, function keys, scripts, RLE graphics and conference mode.
AmigaMonitor	Dynamically displays the machine state, such as open files, active tasks, resources, device states, interrupts, libraries, ports, etc.
Arc	Popular file compression system, the standard for transitting files
AreaCode	Program that decodes area codes into state and locality.
Blink	'alink' replacement linker, version 6.5
Cosmo	An 'asteriods' clone.
Dg210	Data General D-210 Terminal emulator
DirUtil	Windowed DOS interface program, V 1.4
DOSHelper	Windowed AmigaDOS CLI help program
PagePrint	Prints text files with headers, page breaks, line numbers
PopCLI	Starts a new CLI with a single keystroke, from any program, With a screen-saver feature. Version 2, w/source.
SpriteEd	Sprite Editor edits two sprites at a time
X-Spell	Spelling checker allows edits to files

Fred Fish Disk 41

AmigaVenture	Create your own text adventure programs in AmigaBasic.
Csh	Version 2.03 of Dillon's C sh-like shell. Executable only
Dbug	Macro based C debugging packageupdate to FF #2
DualPlayField	example from CBM, update to Intuition manual
GetFile	Heath's file requester, with source
LatXref	Cross reference of Lattice 3.10 header files
Lines	Line drawing demo program
SetFont	Changes font used in a CLI window
Vt100	Version 2.3 of the VT-100 terminal program.

Fred Fish Disk 42

This disk contains an Amiga version of MicroGNUEmacs.

Fred Fish Disk 43

BasicBoing	AmigaBasic program demos page flipping of a 3D cube
Bbm	Demo copy of B.E.S.T. Business Management System.
BbsList	A list of Amiga Bulletin Board Systems
Cc	C compiler frontends for Manx and Lattice C
Copper	A hardware copper list disassembler
InstIFF	Converts Instruments demo sounds to IFF sampled sounds
PopColours	Adjust RGB colors of any screen
SpriteClock	Simple clock is displayed on a sprite above all screens
ST Emulator	Non-serious Atari ST emulator
WBrun	Lets Workbench programs be run from the CLI
Wild	Two Unix shell style wild card matching routines

Fred Fish Disk 44

Icons	Miscellaneous icons
NewIFF	New IFF material from CBM for sampled voice and music files
RayTracePics	The famous ray-tracing pictures, from FF#39, now converted to IFF HAM format for "much" faster viewing.
ViewILBM	Displays normal and HAM ILBM files

Fred Fish Disk 45

Clue	Clue board game
Make	Another 'make', with more features
Pictures	Miscellaneous pictures
Update	Updates older disk with newer files fromanother disk
WhereIs	Searches a disk for files of given name

Fred Fish Disk 46

Asm	Shareware 68010 macro assembler, ROM Kernal Manual compatible
CheckModem	'execute' file program detects presence of modem
Egad	Gadget editor from the Programmers Network
Jive	Transforms a file from English to Jive.
My.lib	A binary only copy of Ma tt's alternate runtime library. Author: Matt Dillon
ProffMacros	Subset Berkeley 'ms' and 'mm' macros for 'proff'
ValSpeak	Transforms a file from English to Valley Speak.

Fred Fish Disk 47

3D-Arm	Simulation of a robotic a rm, very good graphics, teaching tool, including C source.
Juggler	Eric Graham's stunning HAM animation of a robot juggler
VT-100	Version 2.4 of Dave Wecker's terminal emulator, with Xmodem and Kermit file transfer protocols

Fred Fish Disk 48

Bru	Alpha version of a hard disk file archiver
Comm	Version 1.30 of a terminal emulator with phone directories
Csh	Version 2.04 of Matt Dillion's Unix 'csh'-like CLI replacement, including Lattice & Manx C source
Diskperf	Disk benchmark program for Unix and Amiga
Du	Computes disk storage of a file or directory
MemWatch	Program to watch for programs that trash low memory. It attempts to repair the damage, and puts up a requester to inform you of the damage. From the Software Distillery.
Profiler	A realtime execution profiler for Manx C programs. Includes C source.

Fred Fish Disk 49

Cycloids	Update of electronic spirograph from disk 27
DirUtil	Enhanced version of DirUtil from disk 35
MultiDef	Scans a set of object modules and libraries searching for multiply defined symbols
MyUpdate	Disk update utility with options for stripping comments from C header files, and interactive verification of the updating process
Plot	Computes and displays 3 dimensional functions in hires
Polygon	Moire type pattern generator with color cycling
QMouse	Queries whether a mouse button is pressed. This can give a return code that can customize a startup-sequence based on whether a mouse button was pressed.
Touch	Example of setting the datestamp on a file, using a technique from Commodore-Amiga
Trees	More extensive version of the trees program on Disk 31

Fred Fish Disk 50

Asm	Version 1.1 of a shareware 68000 macro assembler, compatible with the Metacomco assembler. This includes an example startup module and more Motorola mneumonics.
BreakOut	A brick breakout game, uses 3-D glasses
DiskZap	Version 1.1 of a program to edit disks and binary files
FirstSilicon	A smart CLI replacement with full editing and recall of previous commands
Missile	A Missile Command-type game, with sound, in assembler
PerfectSound	Sound editor for a low-cost sound digitizer
Sizzlers	Graphics demos
UnixArc	Ver of 'arc' for Unix System V machines,in C
Wombat	Version 3.01 of Dave Warker's terminal emulator

Fred Fish Disk 51

Bison	GNU for Unix 'yacc', working update to FF4
Compress	Update to the file compression program on Disk 6
Cos	"Wheel of Fortune"-type game in AmigaBasic
DifSsed	Unix-like 'dif' and 'ssed' for finding the differences between two files, and then recreating the other, given one file, and the list of differences.
Sq, Usq	Portable versions of the CP/M squeeze and unsqueeze

Fred Fish Disk 52

Assign	Replacement for AmigaDOS 'assign' command in C
Fractal	Makes random fractal terrains
Poly, HAMPoly	Workbench-type demos for making polygons in lores and HAM
MxGads	Example of mutual exclusion gadgets with GadgetText
Tek4010	Tektronix 4010 terminal emulator
VDraw	Versions 1.16 and 1.19 of a Deluxe Paint-like drawing program

Fred Fish Disk 53

Animations	Demo animations with player program for Aegis Animator
ARCre	Creates rename scripts for files with long names, so they can be easily 'arc'ed and un'arc'ed.
ARP	Preliminary AmigaDOS replacements for 'break', 'cd', 'chmod', 'echo', 'filenote' and ' makedir'
Compiler	Not fully ported to the Amiga, this is a 68000 C compiler. It wil produce simple assembly language output, but needs a lot of work.
Spreadsheet	Update with source of the 'vc' spreadsheet on disk 36
TarSplit	Port of program to split Unix 'tar'archives
UUencode	Utilities to encode and decode binary files for ASCII transmission, expanding them by 35%

Fred Fish Disk 54

Hanoi	Solves Towers of Hanoi Problem in it's own Workbench window. by Ali Ozer
ISpell	Port of a Unix screen orientec, interactive spelling checker. (Expansion RAM required) by Pace Willisson
Ing	A Screen of lots of bouncing little windows by Leo 'Bols Ewhac' Schwab
Lav	Displays number of tasks in run queue, averaged over last 1, 5, and 15 minute periods. by Willaim Rucklidge
MIDITools	Programs to play/record through the MIDI I/F. by Fred Cassirer
MoreRows	Program to make the Work Bench Screen larger than normal. by Neil Katin and Jim Mackraz
Tilt	Program to make your Amiga look like it didn't pass vibration testing. by Leo ' Bols Ewhac' Schwab

Fred Fish Disk 55

Csh	V2.05 of Matt Dillon's csh like shell (Modified for Manx C). by Matt Dillon, Modified by Steve Drew
NewStartups	New C Startup modules:
AStartup.asm	with 1.2 fixes and better quote handling.
TWStartup.asm	opens a stdio window, using user specs. by Commodore, posted to BIX by Carolyn Schepper
Palette	Change another program's screen colors. by Carolyn Schepper
PipeDevice	Allows the standard output of one process to be fed to the standard input of another. by Matt Dillon
ScreenSave	Save a normal or HAM mode screen as an IFF file. by Carolyn Schepper
ShanghaiDemo	Demo of the Activision game Shanghai.
SoundExample	A double buffered sound example for Manx C. by Jim Goodnow
Vsprites	A working vsprite example. by Eric Cotton
Vt100	V2.6 of Dave's Vt100 terminal emulator with kermit and xmodem. by Dave Wecker

Fred Fish Disk 56

ClipBoard	Clipboard device interface routines, to provide a standard interface. by Andy Finkle
ConPackets	Demos the use of DOS Packets, ConUnit, etc. by Carolyn Schepper
GetDisks	Program to find all available disk device names and return them as an exec list. by Philip Lindsay
GetVolume	Program to get volume name of the volume that a given file resides on. by Chuck McManis
Icon2C	Reads an icon file and writes out a fragment of C code with the icon data structures. by Carolyn Schepper
MergeMem	Program to merge the MemList entries of sequentially configured RAM boards. by Carolyn Schepper
mCAD	An object oriented drawing program, V1.1 by Tim Mooney

Fred Fish Disk 57

Replaced by FF97 Due to Copyright problems

Fred Fish Disk 58

ASDG-rrd	Extremely useful shareware recoverable ram disk. by Perry Kivolowitz
BigView	Displays any IFF picture, independent of the physical display size, using hardware scroll. by John Hodgson
EGraph	Reads pairs of x and y value from a list of files and draws a formatted graph. by Laurenece Turner
HyperBase	Shareware data management system. V1.5
MemClear	Walks through the free memory lists, zeroing free memory along the way. by John Hodgson
NewZAP	A third-generation multi-purpose file sector editing utility. V3.0 by John Hodgeson
RainBow	A Maurauder-Style rainbow generator. by John Hodgson
SMUSPlayers	Two SMUS plays, to play SMUS IFF music formatted files. by John Hodgson
View	A tiny ILBM viewer by John Hodgson
WBdump	JX-80 optimized workbench printer that does not use DumpRPort. by J. Hodgson

Fed Fish Disk 59

Browser	Update to browser program on disks 18 and 34. S-E
Browser2	Another different browser program. E
Clock	Clock program with fonts, colors. E
Dme	Dillon text editor V1.22 for programmers,ED
DropCloth	Puts pattern on Workbench backdrop,ED
DropShadow	Puts shadows on Workbench windows,E-D
FixWB	Similar to DropCloth, but doesn't work yet. S-D
mCAD	Object-oriented drawing program, version 1.2.2. Much improved over disk 56.
Robotroff	Demo of animated pointers on Workbench. S-E-D
Supermort	General compounding/amortization loan calculator. E-D

Fred Fish Disk 60

Various shareware and freeware programs

Blitz	Memory resident file viewer. Very fast. E-D
BlitzFonts	Makes text output faster. E-D
HandShake	Terminal emulator with VT52/VT100/ VT102support. E-D
Med	Mouse-driven text editor version 2.1. E-D
PrtDrvGen	Generates printer drivers, version 1.1.S available from author. E-D
Show	Slideshow-like IFF viewer, V2.1. E-D
Uedit	Customizable text editor V2.0. E-D
Ueturbo	Example Uedit setup macros. S-E-D

Fred Fish Disk 61

ATPatch	Patches Transformer to work under AmigaDOS 1.2. S-E-D
FillDisk	Writes zeroes to free blocks on a disk for security. S-E-D
LPatch	Patch for programs that abort when loading under AmigaDOS 1.2. S-E-D
MicroEmacs	Conroy MicroEmacs V3.8b, newer than disk 22. S-E-D
PearlFont	Like Topaz, but rounded edges.
Terrain	Generates fractal scenery. S-E-D
VSprites	Makes 28 Vsprites, from P&E Book.

Fred Fish Disk 62

This is a port of the Unix game 'Hack', by the Software Distillery, version 1.0.3D.

Fred Fish Disk 63

This is a port of the Unix game 'Larn', by the Software Distillery, version 12.0B.

Fred Fish Disk 64

This is an offical IFF specification disk from Commodore, an update to disk 16.

Fred Fish Disk 65

Bawk	Unix text processor, like 'awk'. Doesn't work, but source is included. S-E-D.
MWB	Example of rerouting Workbench window open calls to another custom screen. Version 1.01, S-E-D
CloseWB	Example for closing a custom Workbench screen. S-E-D
Cookie	Generates one-line fortune-cookie aphorisms. S-E-D
JTime	Build-your-own mouse port clock.
MenuBuilder	Creates C source files for menus, based on text descriptions. S-E-D.
NewPackets	CBM tutorial on new packets and structures in AmigaDos 1.2.
PascalToC	Pascal to C translator, not so great. S-E-D
Prep	'ratfor'-like FORTRAN preprocessor. S-E-D
RunBack	Starts programs from CLI, allowing CLI window to close. E-D

SunMouse	This program automatically clicks in windows when the mouse is moved over them. V1.0, E-D

Fred Fish Disk 66

AmScsi	Preliminary plans for a SCSI disk controller board.
Asm68k	Macro assembler, version 1.0.1. E-D
Assigned	Example for avoiding DOS insert-disk requester, by scanning the list of 'assign'ed names. S-E-D
Dk	Pretends to eat away at CLI window. S-E-D
Flip	Flips whole screen as a joke. S-E-D
Foogol	Foogol cross-compiler generates VAX assembly code. S-E-D
Free	Prints amount of free space on all drives.S-E-D
MallocTest	malloc/free memory test program. S-E-D
Melt	Pretends to melt the screen. S-E-D
Nart	Graphic flying string demo. S-E-D
Purty	Easy way to set printer attributes from Workbench. E-D
RayTracer	Simple ray tracing program. E-D
SendPackets	Updated CBM examples of packet routines on disk 35. S-E-D
SnapShot	Memory resident screen dump. E-D
TagBBS	Shareware BBS system, version 1.02.

Fred Fish Disk 67

AmCat	Shareware disk cataloging pragram.
AmigaSpell	Shareware Intuiton spelling checker, V2.0. E-D
Bouncer	3-D bouncing ball written in MultiForth, SED
Comm	Terminal program version 1.33, E
Dux5	Another version of DirUtil. S-E-D
HexCalc	Hex, octal, & decimal calculator. E-D
Icons	Various big and alternate image icons.
Mandala	Mandala graphics and sound. E
PersMait	Demo shareware personal file manager.
RSLClock	Menu bar clock version 1.3. E-D
RTCubes	Graphics demo of 3D cubes. E-D
Wheel	"Wheel of Fortune"-type game,AmigaBASIC

Fred Fish Disk 68

This is version MG 1b of the MicroGNUEmacs. Source and executable areincluded, as well as source for other computers besides the Amiga.

Fred Fish Disk 69

Asm68k	Macro assembler, v1.0.3, E-D
BlitLab	Blitter exploring program, in C, S-E-D
Conman	Replacement console device handler adds editing and history to any application that uses CON:, v0.9, E-D
Console	Replacement console routines, in C, S-E-D
Dk	Decays the screen bit by bit, update to disk 66, in Modula-2, S-E-D
Frags	Displays memory fragmentationby listing the size of free memory blocks, in C, S-E-D
IconType	Change the type of an icon, in C, S-E-D
Make	'make' in Manx C, S-E-D
MonProc	Monitors processes for packet activity, in C,S-ED
MouseClock	Mouse pointer into a digital clock,in C,SED
Sb	Browses system structures, from Transactor magazine, v1.0, in C, S-E-D
Spew	Generates 'National Enquirer'-type headlines from rules file. In C,S-E-D
Spool	Three programs to demonstrate multitasking & spooling in a printer spooler. In C, v1.2, S-E-D
Wc	Counts words ala Unix 'wc', but faster, in C,S-ED

Fred Fish Disk 70

This is a disk of shareware programs.

AmigaMonitor	Explores state of the system, v1.13
Arc	Standard file compressor andl librarian, v0.23, a port of MS-DOS v5.0. E-D
BlackBook	Phone book program.
DoTil	Intuition-driven file manipulator program,v2.0.
GravityWars	Game of planets, ships and black holes,v1.03.
Jobs	Alternate user interface to CLI and WB, v2.1.
Lens	Magnifies area around mouse, shows it in a window, v1.0.
Life-3d	3D version of the classic cellular-automaton game, v1.2.
Logo	Logo language interpreter
SetKey	Demo keymap editor, v1.0
Vpg	Makes displays for aligning video monitors, v1.0.

Fred Fish Disk 71

AirFoil	Makes airfoils using the Joukowski transformation, in C, S-E-D
Amiga Basic	Miscellaneous programs including 3D plot program, a kaleidoscope, C-A logo drawing program file comparison utility string search program, S-E-D
Blocks	A variation of "lines", but with variable color blocks. E-D
Comm	Great terminal program, v1.34, E-D
DiskX	Utility for exploring file system.E-D
Fpic	Simple image processing program that operates on IFF pictures, with several filters, merging images, E-D
IconMk	Makes icons for files , v1.2a, E-D
Icons	New icons
NewFonts	Two new fonts; 'shalt18', an electronic ciruit element font, and 'ibm5', a PC-like font.
PetCLI	An AmigaBASIC CLI shell program.
PWDemo	Demo of the commercial product PowerWindows,v1.2. It aids creation of custom windows, menus, and gadgets, giving C or assembly source. E-D
Rot	Creates and animates 3-D objects, v0.5, E,D
TimeSet	Sets time from Workbench, E-D

Fred Fish Disk 72

This is a disk of IFF pictures.

Fred Fish Disk 73

Add	Customizes existing program menus with Amiga-key shortcuts. Also includes 'until', which waits until a given window is created. Shareware, in C, S-E-D.
AutoIconOpen	Fools WB into thinking mouse has double-clicked icons. In C, S-E-D
Dio	Generic Exec device interface code for opening libraries, getting multiple I/O channels, asynchronous operations, etc. In C, S-E-D.
Dissolve	Slowly displays IFF files, ala Nov 86 Dr. Dobb's program. In C, S-E-D
DTerm	Flexible, reprogrammable terminal program v1.10, E-D
Expose	Re-arranges windows so that at least one pixel of menu bar gadgets are exposed. InC, S-E-D.
Lit	Scans a text file, converts to C-style printable strings.C,v2.0, S-E-D
Lmv	"Long Movie", program views series of IFF picts in quick succession, upto 19 fps. Shareware, E-D
MouseOff	Mouse pointer disappears after ten seconds of non-use. In C, S-E-D
ParOut	Examples of controlling parallel port with resources instead of the PAR: device.In C,S-E-D
PenPalFont	Child-like font.
RunBackGround	Similar to RunBack on disk 66, runs program from the CLI allowing the CLI window to close. In C,S-E-D
SnapShot	Screendump utility,update FF 66.E-D
TypeAndTell	Example installs a device handler before Intuition, and speaks each key as it is pressed. In C and assembler, S-E-D
Xplor	Prints info about system lists, in assembler,S-E-D

Fred Fish Disk 74

Cled	Edits and recalls CLI commands, v1.3, E-D
Control	Intercepts graphic printer dump calls and accesses color map, width,and screen resolution. C,S-E-D
Dme	Simple WYSIWYG text editor for programmers,v1.25. Update of FF 59.E-D
DropShadow	WB dropshadows, v2.0.UpdateFF59. E-D
Funds	AmigaBASIC prog tracks mutual or stocks-D
Less	Text viewing program, like Unix "more", v1.1, update to disk 34. S-E-D
Makemake	Scans C source files and constructs a vanilla 'makefile' in the current directory. S-E-D
mCAD	Object-oriented drawing prog. v1.2.4, update to FF 59.Shareware, E-D
Random	Simple random number generator in C. S-E-D
TDebug	Monitors devices by intercepting Exec SendIO() and DoIO() vectors, in C, v1.0, S-E-D
Units	Converts measurements in different units, includes "chart" option, in C, S-E-D
XCopy	Replacement for AmigaDOS 'copy', doesn't change the date, uses Unix wildcards. E-D

Fred Fish Disk 75

Bezier	Play with Bezier curves points and granularity, S-E-D
BSplines	Play with b-splines, as above, S-E-D
Comm	C source for Comm terminal program v1.34. S-E-D
Copy	Replacement 'copy' command v1.0, preserves date, in C, S-E-D
Diff	Simple 'diff' in C, S-E-D
DuM2	Another DirUtil in Modula-2, v1.5, S-E-D
Eless	Fast 'dir' program in C, S-E-D
Fd	Faster 'eless' in C, S-E-D
HardCopy	Sends a transcript of a CLI session to a file, in C, S-E-D
MouseOff	Update FF73, turns off mouse pointer, S-E-D
SetFont	Changes the font in a Workbench screen, v2.0, S-E-D
SpeedDir	Another fast 'dir', in assembler, S-E-D

Fred Fish Disk 76 & 77

These are disks 1 and 2 of Chris Gray's Draco distribution for the Amiga. Draco is a compiled, structured language reminiscent of both C and Pascal. A full interface to AmigaDOS and Intuition is supplied. Be sure to get both disk 76 and 77.

Fred Fish Disk 78

Cycles	Cycle game like "Tron", v1.0, E-D
EOMS	Experts Only Mercenary Simulator game, E-D
MandelVroom	Mandelbrot generator with enhanced palette controls, fixed/floating point, presets, v1.50, in Manx C, S-E-D

Fred Fish Disk 79

AsmTools	CLI tools in assembler: echo, loadit, mounted, setlace, why; S-E-D
AssignDev	Give devices multiple names, in C, S-E-D
AuxHandler	Example of a dos handler that allows use of a CLI via the serial port. Includes source. Author: Steve Drew
Cmd	Redirects printer output to a file, in C, S-E-D
Info	AmigaDOS 'info' replacement, in C and assembler, S-E-D
Kill	Removes a task and its resources, in C,S-E-D
M2Error	Displays errors from TDI Modula-2 compiles, S-E-D
MonProc	Update to process packet prog. from FF69,in C,S,E,D
Mounted	Program for testing if a drive is present, in a script In C, S-E-D
Nro	Another 'roff'-style text formatter, in C, S-E-D
ParTask	Finds parent task, in C, S-E-D
QueryAny	For scripts, asks a question, accepts Y/N, gives return code. In assembler, S-E-D
ScnSizer	Resets pref settings for screen size, in C,SED
SharedLib	Example, shared lib, in C & assembler, S-E-D
Task	Simple CreateTask() example in C, S-E-D
Uw	Unix Windows client v1.0, in C, S-E-D
Who	Lists tasks on ready and wait queues, in C, S-E-D

Fred Fish Disk 80 (see Fred Fish 90)

Fred Fish 80 has been withdrawn due to copyright problems.

Fred Fish Disk 81

Asm68k	V1.1.0 of a macro assembler
AutoFacc	Shrinks the FACC window and moves it to the back
Brushes	53 custom IFF brushes of electronic symbols
CheckIFF	Checks structure of an IFF file CledV1.4 update FF74 of a simple CLI
Conman	Replaces console handler to add editing and history to many programs
Fonts	Miscellaneous fonts
Icon	V6.0 of the Icon programming language
KeyLock	Freezes the keyboard and mouse until pass word entered.
ScatDisplay	hack created from "lng"
Smush	Smushes an IFF file.
Target	Each mouse clikc becomes a gunshot

Fred Fish Disk 82

Adventure	Port of the classic Crowther and Woods game
AmicTerm	V0.50 of a telecommunications program, with scripts, redial, beeps, enhanced file requester
D2D-Demo	Demo version of Disk-2-Disk by Central Coast Software
DX-Synth	Voice filer program for Yamaha DX series synthesizers, update to disk 38
DiskMan	V1.0 of another DirUtil program
Icons	Miscellaneous new icons
Panl	Universal MIDI patch panel, v1.2
Rocket	Another Workbench hack, plays Lunar Lander
Sand	Game of sands following your pointer.

Fred Fish Disk 83

This disk contains a demo version of TeX from N Squared. It is limited to small files, and the previewer can only display ten pages or less, and only a small number of fonts are provided.

Fred Fish Disk 84

AudioTools	Programs from Rob Peck's July/August Amiga World article
BlitLab	Blitter experimentation program, V1.2, update to FF69
Ed	Simple editor, similar to Unix 'ed', based on the editor in Software Tools.
GravityWars	Game of planets, ships and black holes, v1.04, update to disk 70.
HunkPad	Adds legal padding to executables for Xmodem transmission.
PipeHandler	An AmigaDOS pipe device which supports named pipes and taps. V1.2
PopCLI	V3.0 of a hot-key to invoke a CLI window, with screen blanker, update to disk 40.
Requester	Update FF34, file requester similar to DPaint.
ScottDevice	V33.1 of a 'mount'able MicroForge SCSI driver.
Viacom	Another Schwab hack, makes TV-like static on screen.Parody

Fred Fish Disk 85

Csh	V2.06 of Dillon's 'csh'-like shell
FileReq	Source to wildcard file requester
Hide	Hides expansion memory from programs
ImageTools	Shareware tools to manipulation IFF images
LowMem	ServerShared library to aid in low memory situations
Plot5	A star plotting program with source.
RawIO	Example of setting raw mode on standard input
Rocket	Lunary Lander for Workbench, with source.
VMore	"more"-like text viewing utility, v1.0 SE
Vnews	Simple Unix news reader.

Fred Fish Disk 86

AutoPoint	Auto-selects window under the mouse pointer, with screensaver.
ClickToFront	Double-clicks in window brings it to front, v1.1, S-E-D
Cmd	V3.0 of a tool to redirect printer output toa file.
FileIISG-Demo	Demo of Softwood File IIsg, a database manager with sound and graphics.

Fred Fish Disk 87

AdvSys	Adventure system from Byte May 1987, v1.2 E-D
AutoIconOpen	Fools Workbench to open disk icons, V1.2 update to disk 73, S-E-D
Claz	Converts IFF files to PostScript, V2.0, SED
Commodi	tiesMackraz's Commodities Exchange, an exec library to manage input handler, v0.4
Diff	Update to disk 75 of Unix-like 'diff', S-E-D
Dme	V1.27 of Dillon's text editor, update FF74,E-D
DropShadow	V2.0 of prog. that puts shadows on Workbench, S-E-D
Elib	Shared library example in Manx C.
ID-Handler	An AmigaDOS device handler generates unique identifiers, V1.0, S-E-D
Install	Alternate AmigaDOS 'install' programs,SED
MemWatch	Waits for low memory trashing, V2.0, SED
MovePointer	Moves pointer to given location, S-E-D
MoveWindow	Move window to given location, S-E-D
MunchingSq	Munching Squares hack, S-E-D
PalTest	Test to see if this is a PAL machine, S-E-D
Sc	Generates random scenery, S-E-D
Tek4695	Tek4695 printer driver
WBDualPF	Example of dual-playfield screen, update FF41, S-E-D
WarpText	Fast text rendering routines, S-E-D
Yaiff	rExample IFF reader, S-E-D
Zoo	A file archiver like "arc", v1.42A, E-D

Fred Fish Disk 88 (see Fred Fish 89)

FF Disk 88 has been removed due to copyright problems

Fred Fish Disk 89 (replaces Fred Fish 80)

DirMaster	Disk catalogue program, V1.0a, E-D
FuncKey	Shareware function key editor, V1.01, E-D
MFF-Demo	Demo of MicroFiche Filer database prog
ScreenShift	Adjust screen position ie Preferences,SED
Snake	Bouncing squiggly lines demo, S-E-D
AutoEnguirer	screen contraption requester improvement S-E-D
DemoLition	Display Hack S-E-D

Fred Fish Disk 90 (replaces Fred Fish 80)

AmiGazer	Night sky viewer of 1573 stars, set date, time, day. E-D
CardFile	AmigaBasic card file study aid. E-D
Conman	Console handler replacement gives line editing and history to most progs, v0.96,ED
IMandelVroom	Slight update to disk 78 Mandelbrot program, E-D
NewDemos	Replacements for lines and boxes demos that take less CPU time, E-D
Othello	Game of Othello, E-D
PrinText	Displays text files with gadgets, speech, IFF display, v1.2, E-D
PrtDrvGen	Automatic printer driv. generator,v2.2b,ED
RainBench	Cycles colors of WB backdrop or text. ED
ShortCut	Makes single-key shortcuts for entering commonly typed CLI commands,&custom macros. E-D
ShowPrint	Displays and prints all sizes of IFF pictures & controls printer output styles, v2.0 E-D
Sizzlers	Graphics demos, v1.7.0, E-D
Timer	Small Workbench timer counts time and $/ minute, E-D
Tools	Inovatronics tools: a memory editor, memory disassembler, ASCII chart, and calculator. E

Fred Fish Disk 91

Adventure Definition Language (ADL) a superset of an older language called DDL by Michael Urban, Chris Kostanick, Michael Stein, Bruce Adler, and Warren Usui. ADL enhancements by Ross Cunniff. Included are sources to the ADL compiler, interpreter, and debugger. Binaries combined by Ross with Lattice 3.03. CLI enviornment only. Documentation is available from the authors.

Fred Fish Disk 92

As6502	portable 6502 assembler, C source, by J. Van Ornum, Amiga port by Joel Swank
Bawk	Text processor update from FF65 Inspired by UNIX awk. Searches files for patterns, performs actions based on patterns. By Bob Brodt; Amiga port by Johan Widen
HunkPad	update of FF84 version. by J. Hamilton,pads an object file to a multiple of 128 bytes for better xmodem transfer. S E
Less	Like Unix "more", better, version 1.2 update of FF74. Scrolls Back and f orward. S E by Mark Nudelman, Amiga port by Bob Leivian.
Ndir	Library that implements the 4BSD unix dir access routines by MikeMeyer. S
Parse	Recursive descent expression parcer, computes, and prints expressions. includes transcendental function support. c Source included. by J Olsen
Shar	Two programs to pack and unpack shell archives includes C source. by Fabbian G. Dufoe
SmallLib	8 times smaller Amiga.lib replacement, binary only. by Bryce Nesbitt
UUencode	Encode/decode binary files for e mail or text-only methods. Update of FF53, includes checksum technique, compatible with older versions, plus transparent to older versions options. By Mark Horton, modified by Alan Rosenthal and Bryce Nesbitt.

Fred Fish Disk 93

Dme	Version 1.27 WYSIWYG programmer editor. Not a word processor. Includes key mapping, fast scrolling, title-line statistics, multiple windows, ability to iconify windows. Update of FF87, includes source code. by Matt Dillon
MicroEmacs	Version 3.8i, update to FF61 includes source. Orig by Dave Conroy multiple modifications by Daniel Lawrence

Fred Fish Disk 94

AudioTools	Demo programs from Rob Peck's July/Augustt issue of AmigaWorld on accessing the audio device. V2,update of FF84. S. by Rob Peck
ClickUpFront	Similar in function to ClickToFront prog (FF86), bring windows tofront by clicking on any part of them. V 1.0. by Davide Cervone SE
HeliosMouse	Automatically activate a window simply by moving the mouse pointer into the window. V 1.0. Includes source. By Davide Cervone
IFF2Ps	Convert any IFF file to postscript for printing or viewing on a postscript compatible device. Version 1.2, by William Mason and Sam Paolucci E
ModulaTools	Various Modula 2 programming routines. by Jerry Mack
Terrain3d	Pseudo-random 3d relief scenery generator, update of "sc", FF87. by Chris Gray, 3d by Howard Hull

Fred Fish Disk 95

Cmd	redirects the serial.device or parallel. device output to a file. Capture print jobs, debug or "offline" printing.V4 By C Scheppner SE
CygnusEdDemo	Demo of CygnusSoft's CygnusEd editor, a multiplefile, multiple feature editor.Includes demo 3.0 of MandFXP. by CygnusSoft Software E
Gomf	"Get Outa My Face" makes the Guru go away to allow clean-up & shutdown more cleanly. V 1.0, by Christian Johnsen E
Journal	records sequence of mouse & keyboard events, stored in a file for future playback. Good for demos or documtenting bugs. E. by D. Cervone
MergeMem	attempts merging of MemList entries of sequentially configured ram boards. When successful, allows allocating a section of memory which spans both boards. V 2, update of FF56. by Carolyn Scheppner SE
PrinterStealer	Asimilar to "Cmd", allows diversion of output destined for printer to a file. Binary only, Source avai. from authors. by A. Livshits & J-M Forgeas
Record-Replay	similar to "Journal", records and plays back mouse and keyboard events. B only. source avail. from authors, Alex Livshits & J-M Forgeas

Fred Fish Disk 96

AnimPlayer	Animation reader and displayer by the combined efforts of Videoscape, Sculpt3D, Silver, Forms- In-Flight, and Animator:Appreticeby M Hashetal.
Chess	Amiga port, non-Amiga interface. High playability. V 1.0, S. by J. Stanback, Amiga port by B. Leivian
Hackbench	provides source for WB-Likeprog, for experimentation & validation of new interface ideas. Not a WB replacement. by Bill Kinnersley
Label	Print labels with arbitray text. V 1.3, Source available from author, M.Hansen
LineDrawer	Produces line drawings based on drawing commands stored in a text file. Includes demo that draws an outline map of the USA and state borders. V1.0, SE. by John Olsen
PopUpMenu	Example code implementing pop-up menus, reasonably compatible with Intuition menus.SE. by Derek Zahn
Tek4695	Tektronix 4695/4696 printer driver. SE. by P Staub
TimeRam	Fast and Chip ram test prog,E by B Takahashi
WarpText	Fast text rendering routines, to be linked with application progs.Text display "as fast or faster than "blitz"". V2.0 update of FF87, S by Bill Kelly

Fred Fish Disk 97

Replaces FF57 for Copywrite problems

CutAndPaste	Implementaions of Unix cut and paste commands. by John Weald

GraphIt	Program to plot simple functions in 2 or 3 dimensions. by Flynn Fishman
Juggler	V1.2 of robot juggler animation. Uses HAM mode and ray tracing. by Eric Graham
MouseReader	Shareware program to read text files & view IFF files using only the mouse. by William Betz
Splines	Prog to demonstrate curve fitting & ren-dering techniques. by Helene (Lee) Taran
Shm	Simple graphics demo, approximately simulates the motion of two interacting pendulums. Includes Source by Chris Ediss

Fred Fish Disk 98

Access	16 color terminal program based on Comm V1.,34. Includes Macro window, custom gadgets, colorized menus, etc. V. Beta 0.18 by Keith Young ,comm by D.J.James. E.
Backup	Writes AmigaDos disks as the backup destin-ation. recover files from the backup disk. Requires manual decisions on disk structure. by Alan Kent SE
DCDemo	DishCat 2.3, a disk catalog program, demo limited to cataloging 100 files at a time. by Ed Alford, MicroAce Software
HdDriver	WD-1002-05 hard disk controller driver. Card capable of maintaining 3 hard disks and 4 floppies, the driver is capable of only one hard disk. by Alan Kent SED
QBase	Quick-Base, a "MailBase Management utility", define and maintain a maximum of 200 records per file. by Kevin Harrise E
Thai	Thai language quiz program. Speak or type english/Thai sentences from supplied file. by Alan Kent SE

Fred Fish Disk 99

A-Render	Version .3 a Ray- Tracing Construction Set for the Amiga Computer by Brian Reed ED

Fred Fish Disk 100

Berserk	Must see animation, by Leo Schwab
Conman	Console handler replacement, provides line editing and command line histories transparent to application prog uses CON: windows. Shareware V1.0 by W Hawes. E.
WBLander	Workbench display hack game, upgrade of "Rocket" on FF85, now with sound effects. By Peter da Silva. E

Fred Fish Disk 101

CirPlane	Circular plane generator for VideoScape3D. Generates a clockwise circular polygon with the specified number of vertibles. V1.0 by T Floryan SE
IconAssembler	Change Workbench Icons with IFF-brush files by Stefan Lindahl E
Microspell	Standalone spelling checker scans text files and reports errors. 1000 common word list, 43,000 word main dictionary with multiple user dictionary support. Interfaces with MicroEMACS 3.9 with an emacs macro to step through the source file, stopping at suspect words and allowing the user to option. V1.0 by Daniel Lawrence, SED
Midi	midi library and utility set. Includes Midi monitor, routing utility, status utility, and more. by Bill Barton SED
PsIntrp	Postscript Interpreter reads and previews files on screen. by Greg Lee S(assy)E
StartUps	Three C startup file replacements for standard Astartup.obj and LStarup.obj. Options include (1) BothStartup.obj, for the WorkBench programs or CLI programs with or without command line parameters. (2) WBStartup.obj, for WorkBench programs or CLI programs that require no command line parameters. (3) CLIStartup.obj for CLI programs that require command line parameters but do not need to be WorkBench runnable. by Bryce Nesbitt SE

Fred Fish Disk 102

Doug	Machine independent macro based C de-bugging package. Update FF41. by F Fish profiling support by Binayak Banerjee SE
Match-stuff	Heavy duty text pattern matching stuff. includes simple match text replacement capability. By Pete Goodeve
Sectorama	Recover lost or damaged data from floppy or hard disks or repair a damaged volume. by David Joiner E
SliCon	Smart input line interpreter with window for full editing. Upgrade FF50 by P Goodeve., E
Xicon	Use icons to call up scripts containing CLI commands. V2.0 upgrade of FF31.by Pete Goodeve E

Fred Fish Disk 103

AvlTrees	Library and test prog. implement routines for creating and using trees held in memory.S.
Calc	A programmable RPN calculator.
Cref	A C cross ref. prog. S.
DosKwik	A pair of progs. allows you to save files to one or more floppies for quick loading. Doesn't store Dos format.
IntuiDos	A prog. to improve control and handling of the material on all disks in 'CLI-area'.
MFF-Update	A text import util. for MicroFiche Filer (demo on FF 89) and updates to some PD disk library databases.
Pack-It	Takes all files the files and dirs. on a disk & packs them into a single file. for modem.
Sol	Amiga version of solitaire.

Fred Fish Disk 104

Analyticalc	Is a large and powerful spreadsheet prog.

Fred Fish Disk 105

AsmProgs	Misc. assembly tools. Includes some S.
BasicProgs	LeastSquare solves least square probs & graphs results. S.
Bison	A replacement for unix "yacc" command. S.
Dmouse	Another prog in the tradition of display hacks". S.
FlamKey	Allows keyboard and mouse inputs to be locked until a password is entered.
GravityWars	Game of planets,ships and black holes, v2.0 update to FF84.
Po2C	A util. to write a C-lang definition to mimic the intuition pointer.S
Pere-et-Fil	Ex. of creating & using reentrant processes. S.
Record Replay	Similiar to "Journal" v2.0 update to FF95.

Fred Fish Disk 106

Funckey	Shareware function key editor, v1.1update to FF89. Source avail. from author(Anson Mah).
MoreArt	A small selection of some Amiga artwork.
QuickFlix	An IFF slideshow and cel animation prog,v0.13.
RistNolla	A Finnish game. Also called Go-Moku. v1.0

Fred Fish Disk 107

Csh	V2.07 of Matt Dillon's csh like shell.S.
Diff	A util.,similiar to other common "diff" programs.S.
ProSuite	Suite provides ex. code of facilities such as FileIO Requester, XText, DoRequest. & tutorial on how to program the Amiga. Book 1.01.S
SVTools	Some useful tools. S.

Fred Fish Disk 108

AList	Dir listing prog. based on LD4 prg S
DirMaster	Disk cataloger. v1.0b, update to FF89. S.
Dots-Perfect	Printer Driver for an Epson MX80 printer with upgrade kit installed. S.
MonIDCMP	Lets you monitor the IntuiMessages that pass through an IDCMP window. Prints the message class,mouse coordinates,qualifier values. Great for debugging. S.
PrintPop	A util. to send common control settings to PRT: device. S.
Sectorama	Utilities to recover lost or damaged data from floppies & hard disks. v1.1, an update toFF102.
Tek	Vt100 emulator for a Tektronix 4010/4014. (V2.6) update to FF52. S.
Zoo	File archiver, like "arc". v1.24B. update to FF87

Fred Fish Disk 109

Machine	A new animation.
SimCPM	A CP/M sim,simulates 8080 along with h19 emulation. S.
UUpc	Hook up your Amiga as a usenet node. S.

Fred Fish Disk 110

A68k	A 68000 assembler written in C. S.
Pdc	An optimizing C compiler for the 68000 processor. update to FF53. but not based on the code of that disk.

Fred Fish Disk 111

AmyLoad	A graphical monitor of cpu, blitter, & memory use. Includes two components; load.device,monitors system parameters, & amyload, which is the user interface & display program. by Jeff Kelley SE
AssignDev	Assigns multiple names to a given device. modified version of the original released on disk number 79. By Phillip Lindsay, mod by Olaf Seibert SE
Gauge	Continuously displays memory usage in a vertical bar graph Binary only. By:Peter da Silva
HeliosMouse	Another "sunmouse"prog. Automatically activates a window by mouse pointer V 1.1, update to disk 94. By:Davide Cervone SE
Labels	Alphabetic & numeric ordered cross reference lists of defined system constants. Recommended for debugging purposes only, use the symbolic values in progs! By:Olaf Seibert
Mandel	Another mandelbrot generator program, with bits & pieces of code from C. Heath & R.J. Mical. By:Olaf Seibert S
PopLife	A PopCLI type that plays life all over your screen. Lots of bits & pieces from Tomas Rokicki's blitlab & John Toebes' PopCLI. By:Olaf Seibert S

Fred Fish Disk 112

BeachBirds	Beach scene portrayed by sprites & sound 512K machine. By:Jerrold Tunnell B only.
Bully	Pushes all open screens around (thus the name "bully"). Show more than one demo at a time By:Mike Meyer S
DropShadow	Dropshadow V2.0, use with Bryce Nesbitt's Wavebench demo. B only. By:Jim Mackraz
HagenDemos	"RGB" & "Focus". RGB requires one meg. B only. By:Joel Hagen
Viacom	Latest version of viacom for use in conjuction with WaveBench demo. B only. By:Leo Schwab & Bryce Nesbitt
WaveBench	A neat screen hack, & runs on 512K machines. For more laughs, try in conjunction with Viacom or Ds (Dropshadow). Includes S. By:Bryce Nesbitt

Fred Fish Disk 113

AmiCron	Simple Unix "cron" type program,a background task uses a disk-resident table to automatically run certain tasks on a regular basis, at specific times. V 2.3, includes S. By:Steve Sampson, Amiga port by Rick Schaeffer
Dme	V 1.28f of Matt's text editor. A simple WYSIWYG editor designed for programmers. It is not a WYSIWYG word processor Features include arbitrary key mapping, fast scrolling, title-line statistics multiple windows, & ability to iconify windows. Update to FF93, includes S. By:Matt Dillon
DosDev	Example DOS device driver in Manx C. Version 1.10, includes S. By:Matt Dillon
M2Amiga	Demo of the final product M2Amiga. A fast single pass Modula-2 compiler with editor, linker, a small set of interface & standard libraries. Compiles only small demo programs by limiting codesize & imports. Further development of the ETHZ compiler on Disk 24. B only. Demos with Source. By:R. Degen, C. Nieder, M. Schaub, J. Straube (AMSoft)
NoIconPos	Clears position info of any icons, allows WorkBench to pick a new place for the icon. Useful for disk & drawer icons where Snapshot rewrites the icon & the window information. Modula-2, another demo for M2Amiga By:Markus. Schaub

Fred Fish Disk 114

CDecl	English to C (and vice versa) translator for C declarations, a must for anyone except possibly the most hardcore C guru. By:Graham Ross, S
Vt100	V2.7 of vt100 terminal emulator with kermit & xmodem file transfer. Includes a few bug fixes posted to Usenet shortly after the posting of v2.7. Update to FF55. Includes S. By:Dave Wecker
WBLander	a special version of the WBLander program from FF100. Ending is unique. Effective use of sound, Includes S. By:Peter da Silva & Karl Lehenbauer

Fred Fish Disk 115

Killer	Masterful Video commercial of the Amiga, Beatles music, requires one meg of memory to run. Binary only. By:R. Wilt
Marketroid	Another devious sprite oriented demo with lots of "in" jokes. 512K required, includes S. By:Leo Schwab

Fred Fish Disk 116

Movies	A ram animation system with three different example animations; Kahnankas, Rocker, & F-15. Kahnankas & Rocker run on a 512K Amiga & show off overscan HAM mode. Includes a animation player program (movie), animation builder programs (dilbm, pilbm), & a text/graphics display program (vilbm). By:Eric Graham & Ken Offer

Fred Fish Disk 117

AMUC_Demo	A really neat horizontal scrolling demo that is a 2400 x 200 pixel 32 color IFF picture composed of digiview snapshots of members of the AMiga Users of Calgary, superimposed on a very wide picture of the Calgary Skyline. B only. By:Stephen Vermeulen & Stephen Jeans
ExP_Demo	Demo version of Express Paint 1.1., used to create the scrolling demo picture in the AMUC_Demo drawer on thi disk. B only. By:Stephen Vermeulen

Fred Fish Disk 118

Empire	This is a complete rewrite, from the ground up, in Draco, of Peter Langston's Empire game. A multiplayer game of exploration, economics, war, etc, can last months.Played either by local keyboard or through modem.V1.0, shareware, & includes S code. By:Chris Gray, original game by Peter Langston
HAMmmm	Displays lines whose end points are bouncing around the screen, which is a double buffered HAM screen. The Y positions of the points are continuously copied into an audio waveform that is played on all four channels, & the pitch of a just intoned chord is derived from the average X position of these points. JForth. Source By:Phil Burk
Stars	Based on original code by Leo Schwab, has credits longer than the actual demo. Runs on 512K Amiga. B only. By:Hobie Orris
WireDemo	Demonstrates the Amiga's line drawing speed. Runs on a 512K Amiga. Includes S. By:Matt Dillon

Fred Fish Disk 119

MicroEMACS	Version 3.9e of Daniel Lawrence's variant of Dave Conroy's microemacs. This is an update to the version released on disk 93. Also included, for the first time, is extensive documentation in machine readable form. Includes source. Author: Dave Conroy, MANY enhancements by Daniel Lawrence

Fred Fish Disk 120

Amoeba	This clone of Space Invaders is one of the best freely redistributable games for the Amiga to date. Unlike many commercial games, it even works correctly in a multitasking environment (by not requiring you to reboot just to play a game). Highly recommended! Binary only. Author: LateNight Developments
BackGammon	A graphical Backgammon game done as an undergraduate A.I. course project. Version 1.0, includes source. Author: Robert Pfister
Bankn	A complete checkbook system offered by the author as shareware. Version 1.3, binary only. Author: Hal Carter
EgyptianRun	Cute little "road race + hazards" type game. Version 1.1, binary only, shareware, source available from author. Author: Chris Hames
IconImage	Program to replace an old icon image with a new image, without affecting icontype, drawer data, etc. Includes source. Author: Denis Green

Fred Fish Disk 121

BasicStrip	An AmigaBASIC program that helps to convert programs written in other forms of Basic to AmigaBASIC. Author: George Trepal
DataPlot	A shareware plotting program written in AmigaBASIC. Also includes a least squares curve fit program. Author: Dale Holt
Plot	A shareware 3-D graphing program written in AmigaBASIC, with some sample output plots. Source available from author. Author: George Trepal
Stairs	This AmigaBASIC program demonstrates a musical illusion based upon perceptual circularity of widely spaced tones whose volumes are defined as a sinusoidal relationship to their frequency. Author: Gary Cuba
Uedit	Version 2.3 of this nice shareware editor. Has learn mode, a command language, menu customization, and other user configurability and customizability features. Binary only, shareware, update to version on disk 60. Author: Rick Stiles
WBColors	A simple little program to change the Workbench colors to a predetermined color set, for programs that expect to be booted off their distribution disk but instead are run from a hard disk. Includes source. Author: Stefan Lindahl

Fred Fish Disk 122

Asteriods	Nicely done "blast the asteriods" type game. Unique feature is that all the images and sounds are replaceable by the end user. So instead of ships and rocks, you can have an Amiga against a horde of IBMPC's if you wish. Author: Rico Mariani
Iff2Pcs	An interactive puzzle program that takes any IFF file containing up to 16 colors, and breaks it up into squares to make a puzzle which the user can then piece back together again. Version 1.0, includes source. Author: Ali Ozer
Names	A shareware program to create and manage mailing lists. Binary only. Author: Ernie Nelson
Pr	A little utility to print listings in different formats. Similar to the Unix "pr" program. Includes source. Author: Samuel Paolucci
PushOver	A neat little board strategy game, in AmigaBASIC. Push your pieces onto the board until you get five in a row in any direction. Includes source. Author: R.Yost
PuzzlePro	Create a puzzle from an IFF picture, which the user can then piece back together again. Written in AmigaBASIC. Version 1.0, binary only, shareware, source available from author. Author: Syd Bolton

Fred Fish Disk 123

Arp	ARP stands for "AmigaDOS Replacement Project". Arp is an effort led by Charlie Heath of Microsmiths Inc., to replace the current DOS in a compatible fashion, so that current programs will continue to work. Arp also makes whatever improvements are possible, so that current and future programs will work better. Author: Various authors contributed work
Car	This animation is one of Allen's entries to the Badge Killer Demo Contest. It apparently is an inside joke relating to a well known Amigan's experience with a certain highend graphics hardware manufacturer. Author: Allen Hastings

Fred Fish Disk 124

Icons	Some sample animated icons. You might find just the icon for that refugee CLI program you've been meaning to make runable from the WorkBench environment. Author: L. Pfost
Tarot	An AmigaBASIC program written by the author as an exercise for learning BASIC. Contains some nice graphic renditions of tarot cards. Author: L.Pfost

Fred Fish Disk 125

ElGato	This animation is Kevin's entry to the Badge Killer Demo Contest. It also has a background music arrangement, requires Sonix to use. By Kevin Sullivans

Fred Fish Disk 126

Colour	A program to manipulate the colors of specific named screens, saving their current color sets to data files, loading new color sets from data files, or interactively changing the colors. Includes source. By J. Russell
Dance	These two programs, "dancing polygons", are John's entry to the Badge Killer Demo Contest. They are variations of one another, but demonstrate the range of colors available on the Amiga. Includes source. Author: John Olsen
HBHill	This animation is one of Kevin's entries to the Badge Killer Demo Contest. It is the first known animation that makes use of the Amiga's "Extra Half Brite" mode. Author: Kevin Sullivan
Iconify	A subroutine that creates an icon on the Amiga screen that can be subsequently dragged around, and double-clicked on. You can use this to have your programs "iconify" themselves to temporarily get out of the user's way. With source and demo program. By Leo Schwab
OnlyAmiga	This animation is Iqbal's entry to the Badge Killer Demo Contest. It consists of tree balls being juggled by pyramids rotating on their tops. By Iqbal Singh Hans
Suplib	The support library needed to rebuild various programs of Matt's from the source, including DME, DTERM, etc. Includes source. Author: Matt Dillon
VCheck	Version 1.2 of the virus detection program from Commodore Amiga Technical Support. This version will test for the presence of a virus in memory, or on specific disks. Binary only. Author: Bill Koester.

Fred Fish Disk 127

Bounce	This program is Steve and Tom's entry for the Badge Killer Demo Contest. It creates little dots that bounce around and multiply. Includes source. Author: Steve Hansel and Tom Hansel
Nemesis	This demo is Mark's entry to the Badge Killer Demo Contest. It is quite small for what it does, and won fifth place in the contest. Binary only. By Mark Riley
Ripples	This animation is one of Allen Hastings' entries to the Badge Killer Demo Contest. Unlike most other animations, it shows a fixed object from a moving point of view, rather than a moving object from a fixed point of view. Author: Allen Hastings

Fred Fish Disk 128

Dis	A 68000 disassembler, written in 68000 assembler. Includes source. Author: Greg Lee
DropCloth	lets you place a pattern, a 2 bitplane IFF image or a combination of a pattern and image, into the WorkBench backdrop. Version 2.2, shareware, binary only. Author: Eric Lavitsky
LedClock	An extremely simple clock program, for interlaced screens only. Includes source. Author: Ali Ozer
MRBackUp	A hard disk backup utility, that does a file by file copy to standard AmigaDOS floppy disks. Includes an intuition interface and file compression. Version 1.3, includes source. Author: Mark Rinfret
Paint	A simple screen painting program, written in web. Requires web preprocessing program to rebuild from source. Includes source in web. Author: Greg Lee
PrtDriver	A printer driver for the Toshiba "3 in one" printer in its Qume (best) mode. Includes source in C and assembler. Author: Rico Mariani
SDBackUp	A hard disk backup utility. CLI interface only. Does file compression. Version 1.1, binary only. By Steve Drew
Sed	A clone of the Unix sed (Stream EDitor) program. Includes source. Author: Eric Raymondw
Keys	A "hot-keys" program that binds keyboard function keys to window manipulation functions (window activation, front to back, moving screens, etc). Includes source. Author: Davide Cervone

Fred Fish Disk 129

DosKwik	A pair of programs which allow you to save files, or a group of files, to one or more floppies for quick loading, does not store files in DOS format, which is why it is faster. V2.0, update to FF103. Binary, Shareware. Author: Gary Kemper
MRBackUp	A hard disk backup utility, does a file by file copy to standard AmigaDOS floppy disks. Includes intuition interface & file compression. Versions 2.0 (with sources) and 2.1 (binary only, source available from author). Update of FF128. By Mark Rinfret
PaintJet	HP PaintJet printer driver from HP sources.
Patch	Two independent ports of Unix utility "patch", which applies context diffs to text file to automatically update them. Patch version 1.5 was ported to the Amiga by Rick Coupland and patch version 2.0 was ported by Johan Widen. Includes source. Author: Larry Wall

Fred Fish Disk 130

DrMaster	Shareware disk cataloger, V1.1, update of FF108, new features and enhancements. Binary only. By Greg Peters
Evo	Human evolution toy/tutorial with source.By S. Bonner
Hp	A nice RPN calculator prog. supports calculations with binary, octal, decimal, hex, float, and complex numbers. Other features include 32 registers for storing data and transcendental functions. V1.0, includes source. Author: Steve Bonner

For PDS orders, please use form on page 112

PatEdit	A pattern editor for creating patterns to input to the Amiga SetAfPt macro call. This call sets the area fill pattern for the area filling graphics (RectFill, AreaDraw, etc). Includes source. By Don Hyde
QMan	Mandelbrot generator written partially in assem. for speed. Includes source. By Steve Bonner

Fred Fish Disk 131

Dfc	Copies disks like Maurader, but multitasks. Replaces diskcopy and format (smaller than either). Intuition interface. Includes source. Author: Tomas Rokicki
HyperBase	Shareware database management system. V1.6, Binary only, source available from authors. FF58 update. By: Michael MacKenzie, Marc Mengel, & Craig Norborg
Life	A new version of Tomas's ancient Life game, with a new macro language for setting up patterns, good examples, Includes source Author: Tomas Rokicki
Mackie	A Popcli replacement that draws pretty lines on the screen in blanking mode. Includes source. Author: Software Distillery; enhancements by Tomas Rokicki
Mg1b	A version of Mg1b with an ARexx port and other improvements by Tomas Rokicki. Define macros & bind them to function keys in startup file. Includes source. Author: Various; enhancements by Rokicki
WFrags	Another version of Frags, this pops up a little window that updates occasionally. Necessary for developers who wonder what their program is doing to memory. Includes source. Author: Tomas Rokicki

Fred Fish Disk 132

Berserk	Animation, a "must see" for every Amiga user, and ranks with "Juggler" as a premier demo for the Amiga. The difference between this distribution, and FF100, this one includes "source". use it as an example for creating animations. Fred Fish felt it was appropriate to have at least one animation that was available at the "source code" level. Author: Leo Schwab

Fred Fish Disk 133

Conman	Shareware replacement for the standard console handler, provides line editing and command line histories completely transparent to any application program that uses CON: windows. V1.1, binary only, updateoFF100. New features include additional editing keys, fast search keys, undo key, clear history command, and more. Author: William Hawes
Crc	Two programs useful for generating 16-bit CRC listings of the contents of disks, and verifying that a given disk's files still compute to the same CRC's as listed. V1.0, binary only. Author: Don Kindred
CrcLists	Complete CRC check files for FF1-128 using the Crc program included on this disk. These were made directly from Fred's master disks. Author: Fred Fish
Overscan	Patches the Intuition library so that sizable windows with MaxHeight of 200 (400 in interlace) and screens with Height of 200 (400 in interlace) will take advantage of the PAL overscan capability of Intuition V1.2. Useful only for European users who wish to run software written for the US market, without modifying the applications, but still using the additional space. Includes source. Author: Ari Freund

Fred Fish Disk 134

BoingThrows	50 frame HAM animation done with Sculpt-3D, and DigiPaint. The animation took about 325 hours of runtime to generate. By Marvin Landis
Browser	Workbench tool, using text-only windows, makes all files in the system accessible for executing, copying, moving, renaming, deleting, etc. Billed as a "programmers workbench". V1.2, binary only. BY Peter da Silva
Dme	V1.29 of Matt's text editor. Simple WYSIWYG editor designed for programmers. Arbitrary key mapping, fast scrolling, title-line statistics multiple windows, & ability to iconify windows. FF113 update, includes source. By Matt Dillon
Find	Utility searches for files that satisfy a given boolean expression of attributes, starting from a root pathname and searching recursively down through the hierarchy of the file system. Like the Unix find program. V1.0, includes source. By Rodney Lewis
Library	Demo version of a shareware program that stores textual information without regard to structure or content, and allows complicated searching for specific patterns. Written in assembler for speed, binary only. Author: Bill Brownson
SmartIcon	Shareware Intuition objects iconifier. V1.0 is limited to iconifying windows, adds a new "iconify gadget" to each window, that when clicked, iconifies the window into an icon in the ram: disk. Binary only, source available from author. Author: Gauthier Groult

Fred Fish Disk 135

TeXF	A selection of 78 TeX fonts, with a conversion program to convert them to Amiga fonts. 22 different fonts at various sizes, ranging from 15 pixels high to more than 150 pixels. Conversion program can also be used with the fonts distributed with AmigaTeX, yielding an additional 1000+ fonts for use withother Amiga programs. V2.5, binary only. By: Ali Ozer

Fred Fish Disk 136

AsmToolBox	Assembler "toolbox" created to make interfacing between assembler programs and AmigaDOS easy. With source. By Warren Ring
Bison	A replacement for unix "yacc" command. From the GNU (GNU is Not Unix) effort. Port of the latest GNU version, by William Loftus, with the goal of preserving all of bison's current features. Includes source & test pro. "calc". By: Bob Corbett and Rich& Stallman.
If2Pcs	Interactive puzzle progr. takes any IFF file containing up to 16 colors, and breaks it into squares to make a puzzle the user can then piece back together again. V1.1, update of FF122, includes source. By Ali Ozer
Paste	Version of the Unix paste utility. Paste concatenates corresponding lines of the specified files into a single output line (horizontal or parallel merging) or concatenates them into alternate lines (vertical or serial merging). Includes source. By: David Ihnat
YaBoingII	A game program demonstrating hardware sprite usage, including collision detection. Update of FF36. Includes source. Author: Ali Ozer, based on original by Leo Schwab
Zoo	File archiver, much like "arc" in concept, but different in implementation and user interface details. Includes features that "arc" lacks (such as file/path names up to 255 characters in length). V 1.71, update of FF108. Binary only. Author: Rahul Dhesi, Amiga port by Brian Waters

Fred Fish Disk 137

Ct	Program to display images from a CT scanner, along with several interesting sample images of scans of real people, including a skull, brain, heart, and spine. Each image is 256 by 256 pixels in 2048 gray scale. The display software, though it has a primitive user interface, is quite powerful, including functions like convolutions, averaging, laplacians, unsharp masking, edge detection, gradients, etc. Binary only. Author: Jonathan Harman
JeansIcons	Miscellaneous cute icons created for AMUC's monthly newsletter disk. Submitted by Stephen Vermeulen. Author: Steve Jeans
Muncho	A cute little program which plays a digitized sound sample when you insert or remove a disk from your drive. If you don't like the sounds, you can replace them with your own. Binary only. By: Andrew Werth
Sit	Update to the Set Icon Type prog. on FF107. V1.10, includes source. Author: Stephen Vermeulen
VGad	A new gadget editor that takes two pictures of the window and its gadgets, one being the normal gadget state and the other being the fully selected state, then merges the data and converts to C source code. V1.0, binary only. Author: Stephen Vermeulen
VirusX	A boot sector virus check program that runs in the background and automatically checks all inserted disks for a nonstandard boot sector. Such disks can optionally have their boot sector rewritten to remove the virus. Includes source. Author: Steve Tibbett
VLabel	Program to print fancy customized disk labels. Combines an IFF picture and up to 50 lines of text (which may be placed arbitrarily in any font or point size) then print the result. The IFF picture can be virtually any size (up to 1008 by 1000). It will also print labels from a batch file produced by SuperBase. V1.20, binary only. By: Stephen Vermeulen

Fred Fish Disk 138

AmigaLine	A series of various technical notes for Amiga programmers. Author: Byrce Nesbitt
Diff	Program that uses the same algorithm as the Unix diff program and also produces context diffs, suitable for use with patch. Binary only. Author: Unknown (Decus C diff?)
Foreach	A simple but useful program that expands a wild card file specification and then invokes the specified command once per expanded filename, with the expanded filename as the command argument. Includes source. Author: Jonas Flygare
MacFont	A conversion tool to convert Mac fonts to Amiga fonts. Binary only. Author: John O'Neill and Rico Mariani
ModulaTools	Various useful routines for those programming in Modula on the Amiga. Update to version on disk 94, includes source. Author: Jerry Mack
Vt100	Two new versions of Dave's vt100 terminal emulator. One version, based on vt100 2.6, has been enhanced by John Barshinger to include an iconify feature, add full 132 column support using overscan, and other features (binary only). The second version is release 2.8 of the mainstream version of vt100, as enhanced and supported by Tony Sumrall. Includes source. Byr: Dave Wecker

Fred Fish Disk 139

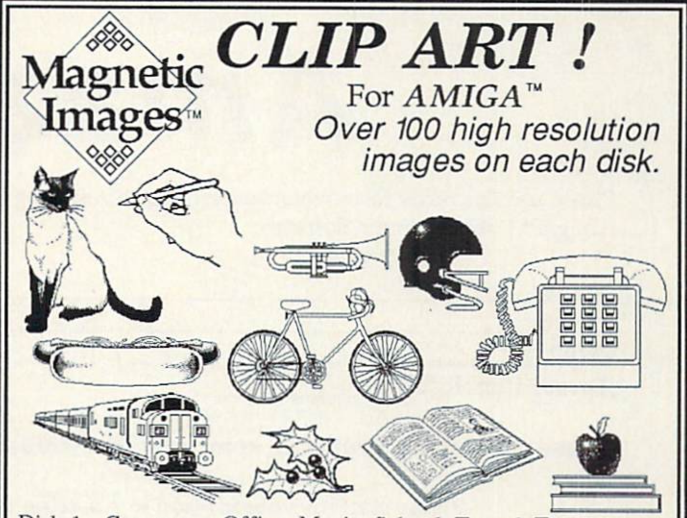
AmiCron	An enhanced and debugged version of AmiCron 2.3 from FF113. Includes source. Author: Steve Sampson, Rich Schaeffer, Christian Balzer
ListScanner	A nice little utility to display all the Exec lists. Simular to Xplor utility FF73. Includes source in assembler. Author: Heiko Rath
ProCalc	Simulates HP-11C programmable calculator. Both English & German versions. Shareware, binary only. Author: Gotz Muller
RemLib	Removes a specified library (if currently unused) or displays some info on all available libraries. Includes source in assembler. Author: Heiko Rath
TurboBackup	A fast mass floppy disk duplicator with enforced verify mode to prevent errors. V1.0, binary only. Author: Steffen Stempel and Martin Kopp
WArranger	Sends a window, identified by its name, to the front or back, without selecting it. Useful with AmiCron. Works on all screens. Includes source in assembler. Author: Heiko Rath
WheelChairSim	A wheelchair simulator developed as a project for the Technical Resource Centre and the Albert Children's Hospital, to allow the matching of a wheelchair joystick to a child's handicap and allow the child to practice using the chair in a safe (simulated) environment. Binary only. Author: Unknown, submitted by Dr. Mike Smith

Fred Fish Disk 140

SBProlog	Volume 1 of the 2 volume Stony Brook Prolog (SBP) distribution, V2.3.2. This volume contains the executables and libraries. Volume 2, on FF141, contains the C and Prolog source code. Authors: Logic Programming Group at SUNY, Stony Brook Amiga port by David Roch and Scott Evernden

Fred Fish Disk 141

SBProlog	Volume 2 of the 2 volume Stony Brook Prolog (SBP) distribution, version 2.3.2. This volume contains the C and Prolog source code. Volume 1, on FF140Authors: Logic Programming Group at SUNY, Stony Brook Amiga port by David Roch and Scott Evernden
SmallC	An Amiga port of the Small-C compiler, written by Ron Cain and published in Dr. Dobb's Journal, in about 1980. Small-C is a rather small subset of the full "C" language. However, it is capable of compiling itself, and other small, useful programs. Requires an assembler and linker to complete the package and produce working executables. Includes source and binary. Author: Ron Cain. Amiga port by Willi Kusche.



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Diff	Program uses same algorithm as Unix diff prog. and produces context diffs, suitable for use with patch.Same as FF138, but now includes the missing files (including source code). Author: Unknown (Decus C diff)
FracGen	Generates fractal pictures from "seeds" you create. Unlike any of the other "fractal generators", it can be used to load and display previously created fractal pics, modify existing fractals, or create your own fractals. V1.1, binary only. Author: Doug Houck
SciSubr	Scientific Subroutine Package from DECUS, ported to the Amiga to run with Absoft Fortran. A valuable resource of mathematical and statistical source code for those doing Fortran work on the Amiga. Author: Unknown; ported to the Amiga by Glenn Everhart

Fred Fish Disk 143

Rim	RIM-5 (Relational Information Manager), a full relational DBMS suitable for VERY large databases using B-Tree data storage, crude (by today's standards) user interface, but full source code is provided. RIM runs on a wide variety of systems, small and large, and produce compatible databases. Includes a built in HELP database and a programming language. Full Fortran source code and documentation included. Author: Various, Amiga port by Glenn Everhart

Fred Fish Disk 144

AnalytiCalc	V22-3D of Glenn Everhart's large and powerful spreadsheet program, update to FF104. Extra features "to have some pretentions of acting as an 'integrated system'. A virtual memory system supporting up to 18000 columns and 18000 rows, multiple equations per cell, an outlining system, built-in cell annotation, and datafile access from any cell(s) of the sheet, plus an array of functions not present in most commercial spreadsheets. Source and documentation in arc'd form.

Fred Fish Disk 145

Csh	Modification of csh like shell to provide file name completion and argument execution. Requires ARP 1.1. Binary only, but includes diffs for the reference 2.07 source base. Author: Matt Dillon; enhancements by Johan Widen
DMouse	Versatile screen blanker, mouse blanker, auto window activator, mouse accelerator, popcli style programmable command key, pop window to front, push window to back, etc, widget. Very useful program! . V1.06, includes source. Author: Matt Dillon
Net	Link protoco provides essentially an unlimited number of reliable connections between processes on two machines, where each can be either an Amiga or a Unix (BSD4.3) machine. Works on the Amiga with any EXEC device that looks like the serial.device. Works on UNIX with tty and socket devices. Achieves better than 95% average throughput on file transfers. V1.20, includes sources for both the Amiga and Unix versions. Author: Matt Dillon
Tab	Tablature writing program, with intruments for a banjo and string guitar. Binary only. Author: Jeff deRienzo
TinyProlog	VT-PROLOG is a simple prolog interpreter provided with full source code to encourage experimentation with the PROLOG language and implementations. Version 1.1, includes source. Author: Bill and Bev Thompson

Fred Fish Disk 146

Blanker2	A screen blanking program that turns the screen black after 90 seconds of keyboard and mouse inactivity. V1.27.88, includes source. Author: Joe Hitchens
C-Light	A demo copy of a commercial ray tracing program, identical to commercial version but limited to ten objects per scene. Binary only. Author: Ronald Peterson
CrcLists	Complete CRC check files for FF129-141 and FF143-145 of the library, using the crc program from FF133. Made directly from Fred's master library. FF142 omitted due to a problem with the crc program. Author: Fred Fish
DmeMacros	A set of DME macros which utilize templates to turn DME into a language-sensitive editor for C, Pascal, Modula-2, and Fortran. By Jerry Mack
MemoPad	A shareware intuition-based memo reminder program. Nicely done. V1.1, binary only. Author: Michael Griebling

To Be Continued......

In Conclusion

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•AC•

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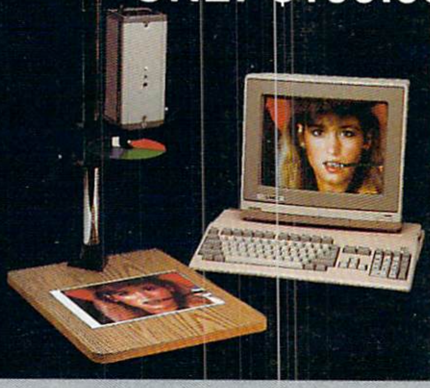

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